Government Museum, Chennai

MUSEUM'S JOURNAL

(April - September 2002)

Published by

Dr. R. KANNAN, Ph.D., I.A.S.,

Commissioner of Museums,

Government Museum, Chennai-600 008.

December, 2002

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GOVERNMENT MUSEUM, CHENNAI

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National Art Gallery (Victoria Hall), 1906 AD.

Back Cover :
Museum Theatre, 1896 AD.

Authors of the articles are responsible for their views in their articles.

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Letter from the Commissioner. . . . . .✍

I am happy to present this issue of the Museum's Journal, for the period from April-September 2002. The Government Museum, Chennai is one of the greatest museums of this world. It has the second largest collection in India. The collections reflect the hoary age of the land viz India in which it is situated and also from countries like Malaysia, Australia etc.

The completion of 150 years is a great occasion for any institution. The completion of 151st Year of this Museum is a landmark event not only in its history, but also in the World of Museology. A series of events were proposed to commemorate this occasion on the model of the Centenary Celebrations held in 1951 AD. It was approved by the Government of Tamilnadu at a meeting convened by the Honourable Chief Minister of Tamilnadu, Dr.J.Jayalalithaa on 4-7-2002. She also took the initiative by writing to the Union Minister for Communications to have a stamp issued on the occasion. This resulted in a decision to issue a mini – sheet with three stamps, a philatelic first for any museum or institution in India.

In the last financial year ending March 2002, we carried out Rs. 62 lakhs worth of schemes under Part II in the Department of Museums. The important items are:

(i) Rock and Cave Art Gallery with *son-et-lumiere* and dichroic halogen lighting activated by infrared rays. This covers the pre-historic petroglyphs and petrographs. It also covers the historic period of cave paintings and sculptures with reference to Tamilnadu sites. The scenography of the gallery brings remote sites into Chennai city providing easy access to the visitors.

(ii) By in-house design, we have created hi-tech showcases with dichroic halogen lighting made of frameless float glass. It has an exhaust fan in the upper compartment and silica gel cabinet in the lower compartment to control moisture levels. These are on par with international standards and many components like hinges, locks, fans; the dichroic halogen lamps were imported. These showcases have been placed in the Foreign Animals Gallery of the Zoology Section in the Government Museum, Chennai.

(iii) A diorama showcase displaying the Malayan Tapir in the Foreign Animals Gallery of the Zoology Section of the Government Museum, Chennai also uses the same hi-tech lighting and mechanism. In addition, the background scene is not painted as usual, but is a computerised vinyl print out of the photographs of the natural habitat of the Tapir. The mega size diorama showcase makes it realistic.

(iv) The Costume Dolls and Civilisation Galleries of the Children's Museum have also been modernised using some of the technology employed in the hi-tech showcases. They now have yellow lighting, which makes for better viewing.

(v) Brochures designed and printed to international standards have been brought out on Rock Art, Conservation, Children's Museum, and Paintings Section along with a General Brochure on the museum as a whole.

In this financial year (2002-2003), under Finance Commission grant of the State Government ongoing project works are under progress for rupees 370.50 Lakhs by way of conservation of the old buildings and reorganising displays. This was also decided at the meeting held by the Honourable Chief Minister. The following items of work are under execution:

1. The fine century old building housing the museum theatre is being renovated. This theatre is modelled on the old Globe Theatre of London.
2. Air conditioning and renovation of the Bronze Gallery building and the Contemporary Art Gallery building are being done at the instance of the Chief Minister. Their lighting has been made on par with world-class museums like the British Museum, The Louvre etc.
3. The Bronze Gallery, which has the best collection of bronzes in the world, the Numismatic Gallery and the Conservation Gallery are being modernised with the latest technology in display.

4. A Special Exposition on the progress of industry and handicrafts of Tamilnadu through the ages is being set up in the renovated Contemporary Art Gallery.
5. Computer Aided Design and Three Dimensional Modeling did the design of these galleries. It is perhaps the first time in the world that such techniques have been used in the staid world of museums. It is in the fitness of things that this leap frogging of technology has occurred at the instance of our great scientist President with the Chief Minister giving a free hand to the museum personnel.
6. The Rock and Cave Art Gallery will be inaugurated.
7. The Holographic Gallery the first in India will be inaugurated.
8. Several publications will be released. These are being brought out with world-class photography and printing.
9. Science Park for children will be inaugurated.
10. A mini sheet consisting of three stamps, the first for any museum or institution in India will be released.

Rs. 90 Lakhs has been sanctioned by the State Government for video serveillance of all the galleries. This will bring our security on par with museums of advanced countries.

A Gallery for Rock and Cave Art (pre-historic and historic period) in the Contemporary Art Gallery, building has been organised for the 151st Anniversary Celebrations. New display techniques have been introduced in this work. This gallery has a walk through diorama and three individual caves of small size. This simulates the atmosphere of the caves. Prehistoric rock art paintings reproduced on rock like structure, *bas-relief* sculpture models of the sculptures found in the caves of Pudukottai district and Mamallapuram in three-dimensional models of *Mandapas* have been displayed with an interactive *son-et-lumière* programme set off by the visitor. This is based on infra-red ray technology. A Touch Screen exhibition on Rock and Cave Art and a series of luminous Tran slide shows have also been provided. Many of these techniques are a first for India.

The history of industry and handicrafts gallery, which is the brain child of the President of India himself, is being set up especially for the 151st Anniversary Celebrations within two months at the instance of the President of India. I was deputed by the Chief Minister to have discussions with the President of India and I met him at the Rashtrapati Bhavan, New Delhi on 12-9-2002. He asked several questions and displayed keen interest in the museum and its mission. I also presented our publications, which included some written by me. He wanted the Investment Casting Process, the latest technology in Lost Wax Casting juxtaposed with the ancient Chola Lost Wax process. We visited the Defence Metallurgical Laboratory, Hyderabad and had discussions with Dr.Bannerjee, the Head and his team of scientists. The technology is being brought to the museum as a video and a few exhibits with descriptive labels. The President displayed keen interest on a new gallery called as 'Exposition on the History of Industry and Handicrafts in Tamilnadu', which is being organised. New innovative methods in display preceded by research have been introduced. We have performed this task within a record time of two months to be ready in time for the visit of the President of India. We have used Octanorm Type Showcases with modifications adapted to India in this case also. This gallery starts with the pre-historic First *Sangam* Era and ends with the present. How Tamilnadu was once the world leader in Industry and Technology, how it rapidly adapted itself to the Industrial Revolution and how now it is stepping into the present Information and Bio-Technology Era as one of the leading States is being presented.

In the proposed Reorganisation of the Bronze Gallery, a star display is the Nataraja as part of the cosmos on the ground floor. Some of the bronzes rotate to show a 360° view. A temple like atmosphere with corbelling, *mandapa* and sanctum of a Vaishnava temple gives a traditional temple atmosphere simulation in the first floor. The mezzanine floor has Jain, Buddhist and Nataraja bronzes. A scroller display-to-display theme like bronze making etc., is another new technology introduced. An audiovisual presentation to enhance inter-activity with the exhibits for the visitors is being organised in the first floor of the Bronze Gallery building. This room will have an LCD Multimedia projector showing videos of the lost wax process of traditional bronze making, the modern Investment Casting Process, the museum through the ages (in the decades of the 1960s, till the present).

We have gone in for a CAD and 3D Model by the School of Architecture, Anna University for the new 'Exposition on History of Industry and Handicrafts of Tamilnadu' Gallery. This is to our knowledge is the first instance of use of such technology in museums in India.

A science park with sponsorship is being organised behind the Children's Museum. This will display open-air science exhibits as play-models, which will teach the laws of science. It will popularise science among children. This is an area of particular interest to the President of India.

This museum is fully funded by the Government of Tamilnadu. It is their generous funding that has made the development that I have adumbrated above possible. Private funding has yet to catch on.

Holograms are used for the display of rare objects now a day. The Government Museum, Chennai has taken up a project with the Centre for Laser Technology of the Anna University, Chennai to holograph the rare bronze icons, coins, jewelleries, tribal objects etc. in the Government Museum, Chennai. The holograms will be on display in the second floor of the Contemporary Art Gallery of the Government Museum, Chennai. In our Museum also, a separate gallery will be devoted for the display of the holograms of the bronzes.

Photographs in digital mode are being taken of the 'AA' and 'A' grade objects in all the galleries. They are being also put on the Virtual Museum, which has been created based on three dimensional modeling so that a person who visits will feel as if he is physically visiting the museum and the galleries. Zoom-in feature to closely study details of the artefacts has also been provided. A lot of descriptive material has also been made available on the Web, since our museum has the advantage of exhaustive documentation done in the past. This move takes us to the frontiers of the current rage in technology i.e. Information Technology.

The Government Museum, Chennai has taken up the modernisation of the galleries in the museum in a phased manner subject to the usual resource constraints. Most of the buildings are heritage buildings and are over a hundred years old. Modernisation of the galleries housed in these can be taken up only after the buildings are restored. At present the conservation of heritage red stone, commonly mistaken for sandstone from Jaipur, the compound wall of the museum is in progress. This work is being executed by the Public Works Department in consultation with the Archaeological Survey of India and me after doing preliminary research on finding the appropriate texture stone for replacing the damaged portion of the compound wall. This work consists of dismantling the existing wall members, re-erecting the same, replacing the damaged portions with the newly found out red sandstone carved out members from Sathiavedu, Andhra Pradesh and re-erecting the wall on a reinforced cement concrete base, to raise the compound wall from the existing level to the present ground level. I give technical advice on conservation when requested to do so by the Public Works Department.

Fibre optic lighting, sliding screen storage and holography take the Government Museum, Chennai to the frontier of technology in display. The Virtual Museum is an important aspect of this modernisation bringing the museum to any person anywhere in the world. The new lawn and landscaping being laid in the campus with indirect lighting will be a real attraction. They give an atmosphere akin to advanced countries. We propose to charge a token fee for entry as is global practice now to prevent entry of vandals.

There is great satisfaction in being the pioneers in bringing the very latest technology in display to India besides getting the maximum value for every rupee spent.

Museum security is a mechanism that provides for the protection of collections. Vandalism by visitors is a problem in the Government Museum, Chennai. Graffiti is written on the walls and periodically removed by the staff. Fines are imposed when the vandals are caught. Security is being privatised. The non-core personnel are being out sourced or the services themselves are being outsourced.

Some of the Amaravathi limestone sculptures, which are below hip level, have been undergoing deterioration at the base for the past two decades due to osmosis. They were embedded in the walls 130 years ago. 119 sculptures out of the 318 sculptures have been safely removed, using power tools and put into storage in 2002. Several of them have been conserved already. The use of power tool technology for this purpose is a first for museums in India.

The republished books of the Pudukkottai Inscription series of books originally published in 1929 AD etc., were released by the erstwhile Maharani of the Princely State at the seminar on Epigraphy held at the Government Museum, Pudukkottai. A practical session for recording of inscriptions by doing away with the old method of recording estampages on paper was demonstrated. This was done at the Gokarneshwar Temple at Pudukottai. The new method consists of spreading a solution on the inscriptions, which highlights the letters of the inscription on 6 X digital camera, photography of the inscriptions, cleaning the rock by washing away the solution and downloading the images on a computer. The downloaded images show the original letters of the inscriptions. This gets rid off the pitfalls in interpretation of the letters of the old scripts like Brahmi by one scholar as in the old method. Scholars, who are now free to see the original letters of the old script, can interpret letters. These deciphered inscriptions will be sold as Compact Discs in the first phase without editing and in the 2nd phase after editing by converting into modern script with editorial notes. An International Workshop on Metal Conservation was conducted in collaboration with KIT, Amsterdam and NRLC, Lucknow on 11th and 12th December 2002. A book by Dr. V. Jeyaraj on Metal Conservation was released. An exhibition was also conducted. As I myself am a Board Member of the Association of International Museums of History, Paris by invitation, we do not lose opportunities for international cooperation.

A weeklong Capsule Courses on Conservation of Cultural Heritage was conducted at Chennai, Tiruchirappalli, Salem and Madurai for the benefit of Curators, Archaeologists, Executive Officers of HR&CE Department, Police Officials and Engineers of Southern Railway by the Chemical Conservation and Research Laboratory of the museum. This course besides teaching the participants on the basic principles of conservation, focused on chemical cleaning an alternative for sand blasting in temples.

History repeats itself. More than a century after the Surgeons - General also served as Superintendents of the Museum, I have been posted as Commissioner of Agriculture and Museums. Archaeology has been detached from me.

I am sure that with the massive efforts being taken for the conservation and restoration and redisplay of the galleries of this museum, all scholars and lovers of heritage and art throughout the world would feel immensely happy. The Department of Museums with the help of the latest technology tries its best to help in preservation and development of ancient and modern knowledge for the benefit of humanity.

I am sure that with the hard work put in by the Curators and the staff of the museum will break new ground based on the vision that we have laid out as the road map this year. Visions, of course, keep changing but the core viz., preservation and presentation of knowledge especially ancient knowledge so that visitors are attracted will remain.

RKannan

Chennai – 6000 08,
31.12.2002.

(**Dr. R. Kannan,** Ph.D., I.A.S.)

Museum News

Description of the colour photographs in the next page

1. Treasure-trove copper alloy objects from Virahanur, Madurai district now at Government Museum, Madurai.

2. Reconstructed *mantapa* of pillars from Kalukuttam village, Kanniyakumari district at Government Museum, Kanniyakumari.

3. Treasure-trove objects from Theythampatti village, Natham taluk, Dindigul district (17th Century AD).

4. Ayyanar with consorts from Avaniapuram, Madurai South taluk at Government Museum, Madurai.

5 & 6. Herostones (16th - 17th Century AD) from Kallanthiri village of Madurai North taluk at Government Museum, Madurai.

7. Buddha stone sculpture (10th Century AD) from Eagambareswarar-Kamatchiamman Temple, Sundarapandian Pattinam, Pudukottai district.

8. Rajput Painting - refer text page no. 100

9. Ganesha Sculpture - refer text page no. 122

10. Prof. R. Jayaraman, CED, M.K. University, Madurai delivers the inaugaural address during the Improvement of Efficiency Inservice Course for Curators etc., at Government Museum, Madurai.

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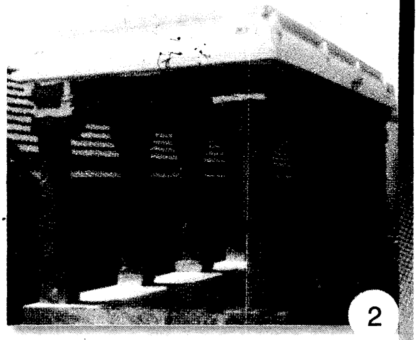
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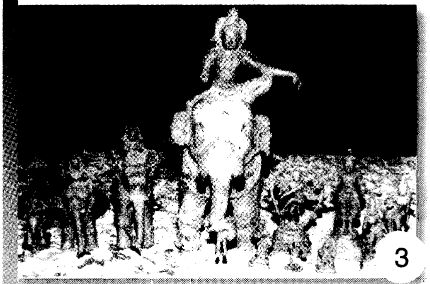
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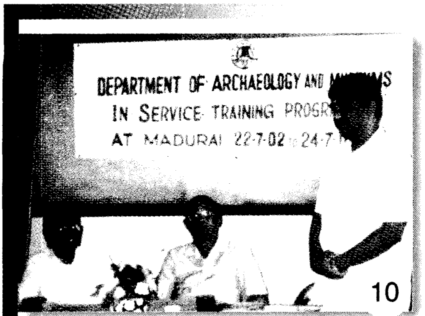
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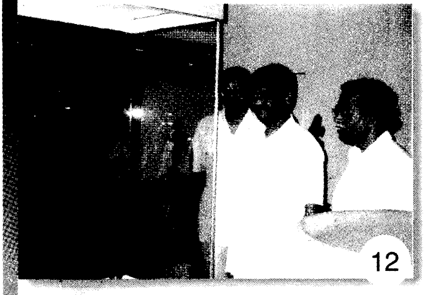

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INTERNATIONAL WORKSHOP ON
METAL CONSERVATION
ORGANISE KIT, AMSTERDA LC. LUCKNOW.
2 DECEMBE
ERNMENT MUSE

15

Description of the colour photographs in the previous page

11. Dr. R. Kannan, Ph.D., I.A.S., releases the Museum's Journal, Vol-7 during the valedictory programme of the 28th refresher course on Care of Museum Objects. Thiru. K. Lakshminarayanan, Assistant Director of Museums, Editors, Dr. V. Jeyaraj and Thiru. K. Sekar at the extreme ends, look on. Dr. V. Rajagopal, Instructor, State Archaeology Department receives the first copy of the Journal.

12. Dr. R. Kannan, Ph.D., I.A.S, Commissioner, inspects the newly erected international standard showcase with bronze icons at the Government Museum, Madurai along with Prof. R. Jayaraman, CED, Madurai and Thiru. K. Lakshminarayanan, Assistant Director of Museums.

13. Participants of the Summer Camp at Madurai painting the ceramic models.

14. His Excellency, Thiru. P.S. Ramamohana Rao, Governor of Tamilnadu releases the book on "Participatory Rural Appraisal in Action", written by Dr. R. Kannan, I.A.S. Thiru. S. Ramakrishnan, I.A.S., Secretary, Environment and Forests Department, receives the first copy of the book, while Thiru. K. Aludiapillai, I.A.S. (Retd.), former Vice Chancellor, Madurai Kamaraj University, Dr. R. Kannan, Ph.D., I.A.S. and Prof. Dr. R. Jayaraman, CED, Madurai Kamaraj University look on.

15. Thiru. S. Ramakrishnan, I.A.S., Secretary, Co-operation, Food and Consumer Protection Department, Government of Tamilnadu releases the book on Metal Conservation authored by Dr. V. Jeyaraj. Dr. W.H. Kal, KIT, Amsterdam receives the first copy. Dr. R. Kannan, I.A.S. looks on.

MUSEUM NEWS

DEPARTMENT OF MUSEUMS - AN INTRODUCTION

Government Museum, Chennai was established in 1851, with 1100 geological specimens. This museum has now developed as a multidisciplinary museum with various sections like Archaeology, Numismatics, Anthropology, Botany, Zoology, Geology, Chemical Conservation and Children's Museum. It also includes Education, Design and Display sections and Chemical Conservation and Research Laboratory as supporting branches. In order to preserve art, cultural and natural heritage and impart museum education throughout the State of Tamil Nadu, 20 district museums have been established in districts. Collection, registration, preservation, display, research and publication are the major objectives of these museums.

Government Museum, Chennai functions from 9.30 a.m. to 5.00 p.m. on all working days, except Fridays and National Holidays.

This Museum's Journal includes articles and information on the activities of the museums under the Department of Museums from April to September 2002.

The district museums are functioning on all days from 9.30 a.m. to 5.00 p.m. except Fridays, second Saturdays and national holidays in the following addresses:

1. Government Museum, Thirugokarnam, Pudukkottai-622 002.
   Ph: 04322-222247
2. Government Museum, Navalar Salai, Salem-636 001.
3. Government Museum, Gandhi Museum Campus,
   Madurai- 625 020. Ph: 0452-2650298
4. Government Museum, Rani Mangammal Hall,
   Tiruchirappalli- 620 002. Ph: 0431- 2708809
5. Government Museum, Municipal Office Complex,
   Erode-638 001.
6. Government Museum, Fort, Vellore-632 004.
7. Government Museum, Government Hospital Road,
   Cuddalore-607 001.
8. Government Museum, Bali House, 70, Mysore Road,
   Udhagamandalam-643 001.

9. Government Museum, Kattur, Coimbatore-641 009.
10. Government Museum, Gandhi Memorial Road, Kanyakumari-622 702.
11. Government Museum, St. Mark's Road, Samathanapuram, Palayamkottai, Tirunelveli-627 002.
12. Government Museum, Gandhi Road, Near Apsara Theatre, Krishanagiri-635 001.
13. Government Museum, Foot of the Hill, Palani-624 601.
14. Government Museum, Weekly Market Road, Sivagangai-630 561.
15. Government Museum, A/M Thiagarajaswami Temple, Tiruvarur-610 002.
16. Government Museum, 35, First Line Beach, Nagapattinam-611 001.
17. Government Museum, 117, Munusamy Avenue, Kanchipuram-636 501.
18. Government Museum, Asanammal Buildings, Head Post Office Road, Ramanathapuram-623 501.
19. Government Museum, Municipal Commercial Complex, Karur-639 001.
20. Government Museum, T.T Road, Virudhunagar-626 001.

MISSION STATEMENT OF GOVERNMENT MUSEUM, CHENNAI

Museums are to develop and diffuse knowledge. The cultural and educational value of museums have to be fully utilised in Third World countries.

In its Archaeology section to highlight South Indian sculptures and idols. This would reflect the high proficiency in carving and casting technology in South India. The bronzes cast by the famous Lost Wax Process are the jewel in the crown.

The Numismatic section with its huge collections of coins. philatelic materials and documents aims to understand the culture, history and technology of India and its relationship with the outside world.

The Art section tries to reflect the changing trends of painting starting from the period of the Mughals, the adaptation of Western oil on canvas painting technique by Raja Ravi Varma in 19th Century to the present era.

The Anthropology section helps to understand the origin of human culture in South India and the customs and manners of South Indian tribes and its evolution into the present stylised forms.

The Geology section tries to present the richness of South Indian rock formations and mineral varieties and informs the ways they are formed, their scientific exploitation and their effects on ecology.

The Botany section exhibits the existing flora of South India with a special emphasis on commercial botany.

The Zoology section with stuffed birds and animals in well designed dioramas helps in the comparative study of South Indian fauna with those of other countries.

The Children's Museum aims to encourage children to touch and feel exhibits to help them understand their heritage and to develop scientific temper.

The Chemical Conservation section tries to preserve the objects in the museum in their pristine form.

The Design and Display section is in charge of galleries and the thematic presentation of the collection. This is to attract and sustain the interest of viewer.

The Education section in coordination with all other sections tries to act as a bridge between society especially the learning younger generation and the museum.

A web site to enable on line access and viewing of all the galleries and artifacts should enable anyone anywhere in the world to visit the museum.

SPECIAL FEATURES

Museum Fire Safety Day was celebrated on 8th August 2002 in the Government Museum, Chennai and a mega fire fighting drill was conducted for the staff, public and the participants of the 28th Refresher Course on Care of Museum Objects. The Capsule Courses on Conservation of Cultural Heritage was inaugurated by Thiru. P. A. Ramiah, I.A.S., Secretary to Government, Tamil Development-Culture and Religious Endowment Department on 11th September 2002 in the Government Museum, Chennai. Hon'ble Minister for Education, Dr. M. Thambidurai visited the museum to show the Kannagi statue to the press.

A month-long Free Summer Camp was conducted jointly by the Government Museum and the Gandhi Memorial Museum. Free training was offered in 20 different types of arts like Music, Dance, Painting, Martial Arts and Photography. About 1000 students availed this free training. The valedictory function was held at the museum campus on 16-5-2002. Mr. Har Sahai Meena, I.A.S., Commissioner, Corporation of Madurai graced the occasion.

The Pudukkottai State manuals published by the Pudukkottai State before 1940 i.e. A Manual of Pudukkottai State - 2 volumes, Inscriptions of Pudukkottai State - 2 volumes, Inscriptions of Pudukkottai State (Texts), Inscriptions of Pudukkottai State - translated into English (3 volumes) were reprinted and published by the Department of Museums were released in a function held at Government Museum, Pudukkottai on 11.5.2002. The Commissioner of Museums, Dr. R. Kannan, I.A.S., released the books and Rajamatha, Rani Rama Devi Thondaiman received the first copy.

The valedictory function of the workshop on the Conservation of Thanjavur Panel Paintings was held at the Meenakshi Sundereswarar Temple, Madurai on 24-5-2002. Dr. R. Kannan, Ph.D., I.A.S., Commissioner of Museums, Dr. R. Jayaraman, Member Secretary, C.E.D., Madurai, Thiru. P. Bhaskaran, Joint Commissioner/Executive Officer, Arulmigu Meenakshi Sundereswarar Temple graced the occasion.

The valedictory function of the In-service Training Programme for the District Museum Curators and Archaeological Officers was held at the C.E.D., Madurai. Dr. Lakshmanan, Former Vice-Chancellor, M.K. University graced the occasion.

A copper plate document on the Ethno - history of the Kongu Kulalar (Potter) community was identified and brought to lime light from Thiruvenkatampalayam, Perundurai, by the Curator, Government Museum, Erode, Erode district.

IMPORTANT ADDITIONS

As Treasure-trove Finds

In Chennai

One gold ingot (10.123 grams), one silver ingot (10.017 grams) from Arumbarampattu village, Sankarapuram taluk, Vilupuram district; two broken silver containers (551.4 grams), damaged pieces of silver wires (38 grams), one inferior silver ring, (37 grams), broken pieces of anklet (83.52 grams), inferior silver pieces (119.54 grams) and a silver container (71 grams) from Sri Muthumariamman temple, Vettavalam village, Thiruvannamalai district; one copper *saradu* (5.6 grams), one golden pendent (4.350 grams), one peacock pendent (4.850 grams), one broken gold pedestal (1.150 grams), thin pieces of gold (0.190 grams) from Siyalam village, Sirkazhi taluk, Nagapattinam district; two gold ear ornaments (2.178 grams, 2.248 grams) and a small broken mud container from Vanipudur village, Gobi taluk, Erode district were received as treasure-trove objects and added to the collection.

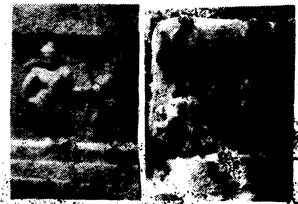
In Districts

Pudukkottai

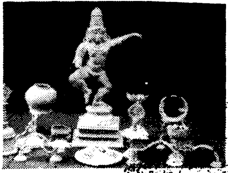
Eight objects made of silver and inferior gold such as small size neck ornaments and leg ornaments, were received from the Collector of Pudukottai district Kulathur taluk, Killukulavaipatty and added to the collection.

Three bronzes-Bhudevi 50 cm, Rama 12.5 cm, Seetha 12.5 cm were received from Additional Chief Judicial Magistrate's Court, Kumbakonam, Thanjavur district.

Madurai



Five hero-stones dated to about 17th Century A.D. (Each 60 cm to 90 cm in height) from Kallanthiri village, Madurai North taluk, Ayyanar (with consorts) sculpture dated to about 19th Century A.D (Ht. 60 cm and Breadth 120 cm) from Avaniapuram, Madurai South taluk, a dancing Krishna bronze dated to about 17th Century A.D. (45 cm in height) along with 20 pooja articles made of bronze from Virahanur, Madurai South taluk were received and added to the collection.



Tiruchirappalli

Stone sculptures of Lakshmi (Height 98 cm, Breadth 39 cm), *Dhandyuthapani* (Height 86 cm, Breadth 29 cm), *Gajalakshmi* (Height 65 cm, Breadth 72 cm), *Lingam* (Height 74 cm, *Avudai* dia. 55 cm), *Suriya* (Height 45 cm, Breadth 23 cm), *Angarahan* (Height 47 cm, Breadth 24 cm), *Budhan* (Height 47 cm, Breadth 24 cm), *Guru* (Height 45 cm, Breadth 25 cm), *Sukkiran* (Height 44 cm, Breadth 21 cm), *Sani* (Height 45 cm, Breadth 25 cm), *Raghu* (Height 33 cm, Breadth 17 cm), Four Pitha stones (each Height 23 cm, Breadth 24 cm), *Thoombukkal* (Length 149 cm), *Nandhi* (Length 53 cm, Breadth 24 cm), Elephant (Length 43 cm, Breadth 20 cm) found in the river Cauvery in Thiruvalarcholai of Ponnurangapuram village of Srirangam taluk were brought to the Government Museum by the orders of the District Collector. A burial urn with two potteries unearthed in Siruthaiyur, a village in Lalgudi taluk was received from the Tahsildar.

Cuddalore

Bronzes of Ganesa (Height 45 cm, Weight 16.7 Kg., 10th Century AD), Parvathi (Height 68 cm, Weight 19.05 Kg.,12thCentury AD), Pradosa Murthi (Height 38 cm, Weight 7 Kg., 12th Century AD), Chandikeswara (Height 30 cm, Weight 18.2 Kg., 12th Century AD), *kombu* - musical instrument (10th Century AD) with inscription from Kallakurichi; stone sculptures of Dakshinamurthi (Height 83 cm, 12th Century AD), Brahma (Height 93 cm, 12th Century AD), Devi (18th Century AD), from the District Collector's bunglow;10th Century AD sculptures from the broken Arthamandapa pillar, *lingam* (Ht. 150 cm), *lingam* (Ht. 112 cm), *lingam* (Ht. 153 cm), *avudaiyar* (Breadth 115 cm, length 150 cm)- 2 Nos., *Peedam* (Length 123 cm), *Nandhi* (Length 115 cm, Ht. 12), *Amman* unfinished (Ht. 145 cm), *lingam* broken (Ht. 112 cm) from Kattumannar Koil; 14th Century A.D, bronzes of Chandra Sekara (Ht. 60 cm) with *thiruvasi*, Chandrasekarambigai (Ht. 51 cm) with *thiruvasi*, Ganesa (Ht. 47 cm), Subramaniya (Ht. 57.5 cm) with *thiruvasi* from Chidambaram were received as treasure - trove objects and added to the collection.

Tirunelveli

A *sathi* stone from Korampallam village, Tuticorin district, Avvaiyar bronze from Tiruchendur Judicial Magistrate, copper alloy dancing folk and a lamp from SankaranKoil Judicial Magistrate, an ornamental conch from Nanguneri Tahsildar and Saraswathi icon from

Tahsildar, Tenkasi were received as treasure - trove objects and added to the collection.

Palani

Eleven small images of copper alloy icluding Ayyanar on elephant, *Karaikkal Ammaiyar,* Bitchatana (17th Century AD), Theythampatti village, Natham taluk, Dindigul district were recieved as treasure-trove finds and added to the collection.

Sivagangai

Bronze icons of Nataraja (Ht. 90 cm, Wt. 62 Kg.) with pedestal, Amman (Ht. 70 cm, Wt 27 Kg.) with pedestal, Amman (Ht. 75 cm, Wt 35 Kg.) with pedestal, Amman (Ht.83 cm, Wt 34 Kg.) with pedestal, Amman seated (Ht. 50 cm, Wt 36.5 Kg.) with pedestal, Kali (Ht. 75 cm, Wt 29 Kg.) with pedestal, Vinayaga (Ht. 45 cm, Wt 20 Kg.) with pedestal, Manicka Vasaka (Ht. 70 cm, Wt 35.5 Kg.) with pedestal, Chandrasekara (Ht. 34 cm, Wt 5 Kg.) with pedestal, Somaskanda (Sivan Ht. 56 cm), Uma (Ht. 50 cm), Skanda (Ht. 18 cm, Wt 105 Kg.) with pedestal, trident (Ht. 73 cm, Wt 20 Kg.) with pedestal, bell (Ht. 30 cm, Wt 1.5 Kg.)-2 Nos., trident (Ht. 52 cm, Wt 4 Kg.) with pedestal, lamp (Ht. 13 cm, Wt 0.5 Kg.), tripod stand (Ht. 24 cm, Wt 1.5 Kg.), long vessel (Ht. 60 cm, Wt 4 Kg.), pedestal (Ht. 18 cm, Wt 35 Kg.) from Madathenthal village, Devakottai taluk were received as treasure - trove objects and added to the collection.

Kanchipuram

An unclaimed stone *Nandhi* sculpture (Height 45 cm, Length 69 cm, 15th Century AD) from Kanchipuram taluk office campus was received as treasure - trove object and added to the collection.

Kanniyakumari

Four pieces (19 cm long) of megalithic potteries were received as treasure - trove objects from the Vilavancode taluk office and added to the collection.

Tiruvarur

Bronze idol of *Ardhanarisvara* (Wt. 2.7 Kg. Ht. 33 cm) from Mannarugudi town; *Sivalinga* (Wt. 1.25 Kg. Ht. 15.3 cm) from Mannarugudi town; *Boomadevi* stone sculpture (Ht. cm, 13th Century AD) Kokkaladi village, six metal art objects (Wt. 12.9 Kg. 15th

Century AD) from Vilangadu village; crawling *Krishna* (Wt. 0.355 Kg. Ht. 4 cm, 16th Century AD) from Vayaloor village; nine metal art objects (Wt.11.35 Kg., 15th Century AD) from Nannilam taluk; one copper *Kasumalai* (Wt. 0.72 gms.) from Kulikkarai village; six bronzes of *Narthana Krishna* (Wt. 16.5 Kg.), *Sridevi* (Wt. 2.3 Kg.), Boodevi (Wt. 2.1 Kg.), *Vishnu* (Wt. 3.6 Kg.), *Kaliyakrishna* (Wt. 0.4 Kg.) and *Mahalakshmi* (Wt. 1.7 Kg.) from Agaraohai village, Kodavasal taluk were received as treasure-trove objects and added to the collection.

Nagapattinam

17th Century AD bronze idols of *Sridevi, Dhanvanthiri,* dancing *Krishna, Bhudevi, Vishnu* and metal objects like hand lamp, copper bowl, tripod and pedestal from Theninagari village were received as treasure - trove objects and added to the collection and were inspected by the District Collector, Thiru. Sudeep Jain, I.A.S.

Virudhunagar

Top portion of a *sthupi* (bronze) of a *gopuram* was received from Tahsildar, Sattur as treasure-trove object and added to the collection.

Through Field Collections and Gifts

In Chennai

One wooden tortoise and a brass tortoise from Thiru. Thilak Iyer, Chennai; three oil paintings and a photograph from His Excellency Governor of Tamilnadu (Art Section); preserved skin of a panther (118 x 118 cm), preserved skin of bear (120 x 85 cm), from His Excellency Governor of Tamilnadu; fifty vascular plants as field collection (Botany Section); a shell tortoise from Thiru. Thilak Iyer, Chennai, a bust model puppet from Dr. R. Kannan, Ph.D., I.A.S., Commissioner of Museums (Children's Museum) were received as gift and added to the collection. A titanium shield presented by the Defence Mettallargical Laboratory, Hyderabad was presented to the Museum by Dr. R. Kannan, Ph.D., I.A.S.

In Districts

Pudukkottai

Photoprint of Raja Rajagopala Thondaiman (Balck and white, 75 cm X 120 cm) was received from the Collector.

Salem

14 currency notes belonging to various countries from Thiru. S. Thirumoorthy, Namakkal; 300 numbers of 20 paise coins, 4 numbers of tribal huts and wood fossil (photograph), 2 Silver rings (one with gem stone) from Thiru. A.K.P. Kathivelu and S. Anand, Salem; one terracotta (Muniyappan) from Master S. Senthilkumar; one English type writer machine (1908 model) from Thiru. Padmanaban, Alagapuram; 33 First Day covers, stamps and brochures from the Senior Post Master, Coimbatore; 14 First day covers from Prof. K.A. Thirugnana Sambandam, Erode were received as gift and added to the collection.

Madurai

Six First day covers and six folders were received as gift from the Senior Post Master, Philatelic Bureau, Madurai and added to the collection.

Tiruchirappalli

A 10th Century Buddha sculpture (Height 120 cm, Breadth 100 cm), 3 lion pillars of Early Chola period (Height 175 cm, Breadth 40 cm), 2 highly mutilated Dwarapalakas and a broken Dwarapalaka of Vijayanagara period were brought from Devasthanam village, near Pettavathalai of Srirangam Taluk to the museum by the orders of the District Collector and with the help of Pettavathalai Sugar Mills as surface findings.

An half pie copper coin of the year 1862, an one anna coin of the year 1929, a four *Dhuttu* coin of the year 1825, and a ten cent coin of Kenya bearing the year 1986, from Thiru. K. Murugesan of Vannarappettai, 2 copper coins (20 cash, 10 cash) of East India Company, minted in 1808 from Thiru. K. Kandasamy of Bikshandarkoil were received as gift and added to the collection.

Erode

A copy of the book entitled, "Ethnohistory of Kaadaiyur Muzhukkaadhukulak Koottam" (in Tamil) from Dr. S. Raju, Erode, a fossilised femur bone of bovidae of post - Pleistocene Period from Thiru. R. Baskaran, Ichippalayam; mounted skeletons of Indian Gaur, 2 Sambhar deer, 3 assorted antlers, conch shells, pug marks of panther and fox, parts of the brass shell used in warfare, a Kannappa Nayanar wood carving, a brass measure with punch marks of years received as gift; 3 stone sculptures of Garudalwar and Naga as field collection were added to the collection.

Vellore

A granite ball from the Fort, Vellore and a devotee sculpture from Vellore as field collection; one green snake, skeletons of a calf elephant and a panther from Vellore District Forest Officer; 7 First Day covers from the Philatelic Bureau, were received as gift and added to the collection.

Cuddalore

Wood fossil (length 85 cm, breath 25 cm) was recieved as a field finding and added to the collection.

Udhagamandalam

77 First Day covers, stamps and folders from the Senior Post Master, Philatelic Bureau, Coimbatore were received as gift and added to the collection.

Coimbatore

Herbaria of 10 medicinal plants as field collection; 40 stamps, 10 First Day covers and brochures from the Senior Post Master, Philatelic Bureau, Coimbatore were received as gift and added to the collection.

Kanniyakumari

Travancore period coins, 2 four cash, 2 eight cash and 2 one cash from Thiru. Austin, Nagercoil; 6 Travancore revenue stamps and 4 Travancore post-cards from Thiru. Subramania Chettiyar, Trivandrum; one *panam* of Travancore coin -1121 from Thiru. Irudayaraj, Nazareth; one Travancore post card -1123 year from Thiru. Jerold Jocob, Coins Collector, Nagercoil; one *panam* (Silver), 1/2 rupee (Silver) coins and one bundle of Travancore palm-leaf manuscripts from Thiru. Sarma, Suchindrum; 6 First Day covers, stamps and folders from the Senior Post Master, Madurai and 50 Indian and foreign stamps; one sea cucumber, (weight 750 gms.) from Dr. Balachandar, Anju village; laminated colour photograph of Kanniyakumari District Historical and Tourist Spots (Size 12 x 15 cms.) from Kanniyakumari District Collector's fund were received as gift and added to the collection.

Krishnagiri

23 medicinal raw materials as field collection; 20 stamps, First Day covers and brochures from Postal Department were received as gift and added to the collection.

Sivagangai

Two Indian National Army emblem, photographs of Netaji Subash Chandra Bose Bhavan, Netaji's car, Netaji's Gallery, a memento (Presented to the donor by Chief Minister of West Bengal), an Italian artefact revealing the birth of Jesus, four Netaji's Badges, a cap (used by the donor during independence war), a tumbler, seven vessels and a mat (made of two palm leaves), two laddles, two sets of uniform of Indian National Army from Mr. S.L.K.R. Adhappan, Freedom Fighter and an Indian National Army Soldier, Okkur; six First Day covers, six brouchers from Philatelic Bureau, Madurai; two swords from Mr. A. Ramesh, Thiruppathur; a stamp paper (3Anna) from Mr. Subramanian, Kalaiyarkoil; four ink dipping pens from Master. G. Parameshwaran, Sivagangai; an Indian currency, six Indian coins, a foreign currency, four foreign coins, a foreign stamp from G.R. Balaji, Emaneshwaram; a sword from Mr. S. Pandian, Sivagangai; a burial urn, two burial potteries and two earthern vessels from Sirumarudhur; two foreign coins from Mr. V.R. Venkatasubramani, Chennai-62; two foreign coins, an Indian coin, seven foreign stamps from Mr. G. Vadivelmurugan, Sivagangai; a Sri Lankan coin from Mr. Nehru, Sivagangai; many fragments of burial urn and a burial urn from Namanoor tank; a nut cutter from N. Sasikala, Kanchirankal; a stone vessel from Mr. A. Arun, Sivagangai; a mud jar from Mr. N. Murali, Sivagangai; a Malasiyan currency from Mr. S. Al Ameen, Salaiyur were received as gift and added to the collection.

Palani

Twelve First Day covers and brochures from Indian Postal Department; 24 old books from Mr. Balasubramanian, Palani, a small spectacle and a metal ball used by the Todas of the Nilgiris from Mr. Ramu, Uthagamandalam were received as gifts and added to the museum collection.

Tiruvarur

3 Sri Lankan coins were received as gift from Thiru. Kamalanathan Rohini, Jaffna and added to the collection.

Nagapattinam

8 copper coins of King George V and VI received as gift from Thiru N.K. Soundararajan and 8 pieces of broken whale skeleton from Thethakudi village, through the Vedaranyam Tahsildar as unclaimed property and added to the collection.

Kanchipuram

An ancient *metti* from Pachai Amman temple, Ayyankarkulam, two foreign currency notes from Thiru. Kothandam, Tolgate; three Anglo Indian coins from Thiru. K. Murthy; and a Canada coin from Thiru. Kumar were received as gift and added to the collection.

Ramanathapuram

A Chola period copper coin from Kanchirankudi, a Krishna statue made of white cement from Alankankulam were received as gift and added to the collection.

Virudhunagar

Palm-leaf manuscript of *Jatagam* from Thiru.V.V.S. Kesavan, Virudunagar was received as gift and added to the collection.

VIP VISITS

In Chennai

Honorable Bhakta Dev Belayar, Minister for Culture and Tourism, Nepal paid a visit to the Government Museum, Chennai on 27.07.2002.

His Excellency, L.K. Ponappa, Ambassador of India to Thailand paid a visit to the Government Museum, Chennai on 10.08.2002.

In Districts

Thiru. Sudeep Jain, I.A.S., District Collector, Nagapattinam paid a visit to the Government Museum, Nagapattinam on 9.4.2002.

Thiru. Theniah, Joint Commissioner of Hindu Religious and Charitable Endowments Department, Kanniyakumari paid a visit to the Government Museum, Kanniyakumari on 23.5.2002.

Thiru. C. Thangaswami, I.A.S., District Collector, Cuddalore paid a visit to the Government Museum, Cuddalore on 6.6.2002.

Prof. Sundara, former H.O.D. of Ancient History, Karnataka University, Thiru L.S. Rao, Superintendent, Temple Survey Project, Archaeological Survey of India paid a visit to the Government Museum, Vellore on 4.7.2002.

Thiru. Sunil Palivel, I.A.S., District Collector, Tirunelveli paid a visit to the Government Museum, Tirunelveli on 21.7.2002.

Dr. A.C Mohandas, Ph.D., I.A.S., District Collector of Vellore and Thiru. T. Raghupathy, President, World Tamil Sangam, Sweden paid a visit to the Government Museum, Vellore on 11.8.2002.

Dr. T.A. Veerasamy, Director, All India Radio, Kodaikkanal paid a visit to the Government Museum, Sivagangai on 11.8.2002.

Thiru. K. Rajaram, I.A.S., District Collector, Kanchipuram paid a visit to the Government Museum, Kanchipuram on 14.8.2002.

RESEARCH FACILITIES AND LOAN OF OBJECTS

Research facilities were rendered to the following persons for their research:

In Chennai

Three research scholars Thiru. B. Livingstone Jebaraj (Conservation of Coins), Thiru P. Rajendran (Conservation of Wall Paintings) and Selvi. Y.A. Divya Durga Prasad (Conservation of South Indian Paintings) are being guided by Dr. V. Jeyaraj, Curator, Chemical Conservation and Research Laboratory to do research leading to Ph.D. Degree; research facilities were offered to Miss. Rupa and Miss. Rita from Madras Christian College on Museum Flora (Botany Section); Thiru. Kuntee Kumar Sevak, Hydrabad on Sultan Coins, Thiru. Krishor Jhuzherwake, Bombay on Paper Money (Numismatic Section); Selvi Neelima, Meenakshi College, Chennai on Pallava Copper Plates, Dr. Michael D Rabe, Newyork on Pallava Copper Plates, Dr. Bhuvanendra Kumar, Newyork on Jain Sculpture (Archaeology Section).

Loan of botanical objects were given to Bharath Matriculation School, Adhambakkam (Botany Section).

In Districts

Pudukkottai

Research facilities were extended to Ms. M. Brahadambal

(Thirumanacheri Parimaleswarar Temple), at the Government Museum, Pudukkottai.

Salem

Research facilities were rendered to Thiru. R. Ravikumar, M. Phil student from Madurai Kamaraj University (Mariamman Koil at Omalur Kottai).

Madurai

Research facilities were rendered to Miss. Reena (Bronzes), Miss. Taj Nisha (Sculptures), Miss. R. Sophia (Memorial Stones), Miss. Varalakshmi (M. Phil. Thesis on the Archaeological Collection in the Government Museum, Madurai).

Tiruchirappalli

Research facilities were rendered to Thiru. Y. Paul Arul Samy, an M.Phil. student, Madurai Kamaraj University (Coins), Tvl. Tripti Hothsan, M. Sateesh Kumar, M. Pushparaj and Akniksha Modi students from Regional Engineering College, Tiruchirappalli (Indian Temples).

Vellore

Research facilities were rendered to Selvi Sobha, M. Phil. student of Chellammal Women's College, Chennai (Arulmigu Vilvanathar Temple), Thiru. Babu M.Phil. History student, C. Abdul Hakkim College Melvisharam (Timiri).

Cuddalore

Research facilities were rendered to Miss. B. Revathi, M.Phil. student, Madras University (Padaliswarar Koil - Thirupadiripuliyur), Thiru. P. Sam Sathiyaraj, Curator, Madurai (Saivite Bronzes in the District Museums).

Loan of objects like fossil wood, Stone Age stone implements were loaned to the Krishnasamy Matriculation Higher Secondary School, Cuddalore on 27.8.2002.

Erode

Research facilities were rendered to Selvi Sowmya Thangavelu (Inscriptions), Thiru. Kanagaraj (Indigenous People of the Kongu), Pulavar A. Palaniyappan (South Indian Tamil Inscriptions), Thiru. 'Solar' Subramaniyam and Tmt. Vijayalakshmi Subramaniyam (Indian Antiquities and Art Treasures Act, Underground Routes in the History, Heritage of the Kongu Region, Antiquities of the Kongu Region, Hero-stones of the Kongu region), Thiru. Rajib Mukherjee (Vaelaathamman Cult in the Kongu region, Cult of Aravaan), Thiru. P. Sam Sathiyaraj, Curator, Madurai (Hero-stones and Saivite Bronzes), Thiru. Karthikeyan, Reporter, Kalai Kathir (Aspects of Saivism), Tmt. S. Yuvaraj, M.Phil student, Salem (Ethnohistory of Kongu Vellalar community), Thiru. Balamuruga Prabakar, Thiru. Suresh, Sub Registrars, Karungalpalayam (Special Features of the Kannada Script), Thiru. V. Kamaraj (Aaragaloor Magadha Vanavakaovaraiyar).

Coimbatore

Research facilities were rendered to Thiru. K.P. Balu, Project Coordinator, K.G. Eye Hospital (Medicinal Plants), Thiru. V. Palanisamy, Forest Officer, Kothagiri (Wood Carvings).

Kanniyakumari

Research facilities were rendered to Selvi. Prema, Kuzhithurai and Selvi. Vilazini Sansart, student of Baroda University (Swamithope Ayyavaikundasamy Temple), Selvi. Suganthi, Nagercoil (Forts of Kanniyakumari District), Thiru. Irudayaraj, Nazareth (Chera Period Coins), Thiru. Austin. Nagercoil (Copper Plates), Selvi. Irin Rita, Uttamapalayam (*Kathakali Natanam*).

Palani

Research facilities were rendered to Mrs. Mani, Arulmigu Palani Andavar Women's College, Palani (Temples of Dindigul District) and Mrs. Gowsalya Devi, M. Phil student (Chola Inscriptions).

Tiruvarur

Loan of objects of *Sangam* period pots were given to Gowrisamy Municipal Middle School, Tiruvarur for a Special Exhibition.

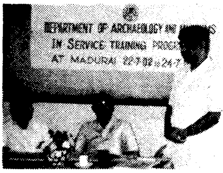
Kanchipuram

Research facilities were rendered to Thiru. Balasundaram, Editor, 'Murasedu' - Bimonthly (Pallava Coins). Loan of objects of botanical specimens were given to Kathri Matriculation School for a Science Exhibition.

TRAINING COURSES, COMPETITIONS AND CELEBRATIONS

The following training programmes, courses, competitions and celebrations were conducted at the Government Museum, Chennai and district museums:

15.04.2002- 16.04.2002	Free Summer Camp Training was offered on 20 different types of art like music, dance, painting competition for school students in collaboration with the International School of Business, Pune; Arts and Spices, Chennai - Art Section, Government Museum, Chennai.
04.05.2002- 10.05.2002	Summer Art Training for 85 school students - Government Museum, Vellore.
07.05.2002- 10.05.2002	Epigraphy Training for 30 college students and to the public-Government Museum, Salem.
14.05.2002- 24.05.2002	Conservation of Thanjavur Paintings - training programme including the Conservation of two large Thanjavur Panel Paintings of Meenakshi Sundareswarar Temple, Madurai were conducted by the Department of Museums headed by Dr. V. Jeyaraj, Curator, CCRL, Government Museum, Chennai coordinated by the Government Museum, Madurai. Twenty persons including Artists and students from Madurai and Chemists and technical staff from the Department of Archaeology participated in this training camp.
16.05.2002	Validictory Function of the summer camp training on painting, martial arts, photography etc. for about 1000 students, Thiru. Har Sahaai Mena I.A.S., Commissioner, Corporation of Madurai participated as Chief Guest- Gandhi Memorial Museum and Government Museum, Madurai.
05.06.2002	World Environmental Day Celebrations - Tree saplings were planted in the museum campus - Government Museum, Krishnagiri.
06.06.2002	Free demonstration on tile painting, stick on sticker painting and acrylic painting by Tmt. Shanthi

	Gopalakrishnan, Fevicryl Teacher. 75 persons both men and women participated in this camp - Pidilite Industries Ltd. and Government Museum, Madurai.
15.07.2002- 14.08.2002	The 28th Refresher Course on Care of Museum Objects was conducted for museologists, archaeologists, private collectors and volunteers - Chemical Conservation and Research Laboratory, Chennai.
22.07.2002- 24.07.2002	In-service Training Programme for the Districts Museum Curators, Archaeological Officers and Epigraphists -By the Department of Museum at Government Museum, Madurai. 
22.07.2002	Quiz Competition for school students - Thiru. Selvaraj D.E.O., distributed the prizes for the winners - Government Museum, Krishnagiri.
04.08.2002- 17.09.2002	8th Batch Lawn Art Training Camp on 6 Sundays to 175 school students - Government Museum, Vellore.
06.08.2002- 08.08.2002	An inservice short term training programme was organised by the Department of Museums to the 6 Curators of the Department of Museums and 10 Archaeological Officers of the Department of Archaeology at Government Museum, Pudukkottai.
11.08.2002	Poetry and Painting Competition for school students (14-21 years) in collaboration with the Initiatives Women in Development, Chennai. 1000 Children participated - Education Section and Art Section, Government Museum, Chennai.
12.08.2002- 17.08.2002	Training on 'Ceramic Modeling' by Ms. Gayathri of Madurai -20 women from Madurai participated - Government Museum, Madurai.
12.08.2002	Poets Meet on Freedom Fighters of Excellence in collaboration with Erode *Tamil Sanga Peravai*- Government Museum, Erode.

18.08.2002	Competitions on paintings, quiz programmes, relay songs, skits for school students in connection with 'Independence Day Celebrations' under the joint auspices of the Tamil Nadu Artist's Association, Erode district and *Vidiyal Samooga Nala Iyakkam,* P. Puliyampatti - Government Museum, Erode.
05.09.2002- 06.09.2002	Training on 'Identifying the Bronzes and Treasure - trove Problems' for CBCID (Idol Wing) Officials - Archaeology Section, Government Museum, Chennai.
11.09.2002- 17.09.2002	Capsule Course on Conservation of Cultural Heritage for the benefit of Curators, Archaeologists, Epigraphists and Executive Officers of the Hindu Religious and Charitable Endowments Department - Chemical Conservation and Research Laboratory, Chennai.
27.09.2002- 11.10.2002	Archaeology Training to III B.A. History students of Emerald College - Government Museum, Udhagamandalam.
12.10.2002- 13.10.2002	Epigraphy- Introduction Training for about 60 persons - Government Museum, Tirunelveli.

SEMINARS, WORKSHOPS AND CAMPS

The Department of Museums conducted the following seminars, workshops and camps in Chennai and districts:

14.04.2002	Seminar on Medicinal Herbs in collaboration with Medical Department - Government Museum, Krishnagiri.
14.05.2002- 24.05.2002	Workshop on Conservation of Thanjavur Paintings was conducted in A/M Meenakshi Sundareswarar Temple, Madurai - Chemical Conservation and Research Laboratory, Chennai.

PRESENTATION OF PAPER IN SEMINARS / WORKSHOPS

In Chennai

Dr. R. Kannan, Ph.D., I.A.S., Commissioner of Museums.

Underwater Archaeology - Paper sent to the seminar on "Kumari Continent in Tamil" to be held at Kanyakumari Historical and Cultural Research Centre, Nagercoil

Dr. V. Jeyaraj, Curator,
Chemical Conservation and Research Laboratory.

14.05.2002- 24.05.2002	Thanjavur Paintings and Their History, Thanjavur Paintings and Their Structure, Restoration of Thanjavur Paintings - papers presented in the workshop on Conservation of Thanjavur Paintings at Madurai.

In Districts

Dr. J. Raja Mohamed,
Curator, Government Museum, Pudukkottai.

18.08.2002 19.08.2002	"Kayal and Kayalpattinam" - Paper presented in the seminar organised by the Tamil Nadu Archaeological Society at Palayamkottai.

Thiru M. Gandhi, Curator, Government Museum, Vellore.

10.05.2002	Names of Irrigation Tanks and Canals in Pudukkottai District - Paper presented in the seminar organized by the Government Museum, Pudukottai.
20.07.2002- 21.07.2002	Palankoil Sculptures - Paper presented in the the seminar organized by the Tamil Nadu Archaeological Society at Tirunelveli.
29.09.2002	Western Ganga Hero - stones in Tondaimandalam - Paper presented in the seminar organized by the *Puducherry Varalatru Sangam and Thonmai Ayvu Niruvanam* at Puducherry.

Dr. C. Maheshwaran, Curator, Government Museum, Erode.

27.07.2002	Hero - Stones of Kongu Region - Paper presented in the seminar on "Kongu in the History" held at P. Puliyampatti.

Thiru N. Soundrapandian,
Curator, Government Museum, Udhagamandalam.

09.09.2002 Nilgiri Terracottas - Paper presented in the seminar on 'Kotta Pottery, Terracotta and Painting' organized by C.P.R. Environmental Education Centre.

Thiru. P. Sam Sathiaraj,
Curator, Government Museum, Madurai.

25.04.2002-27.04.2002 Contribution of Madurai Museum to Education and Art and Culture Development - Paper presented in the 'National Conference on Museum Training' at the State Institute of Archaeology, Art History, Conservation and Museology (SIAACM), Hill Palace, Tripunithura, Cochin, Kerala organized by the National Museum Institute New Delhi and the SIAACM, Kerala.

Thiru. A. Periyasamy,
Curator, Government Museum, Palani.

29.09.2002 Natural Calamities and Famine in the Palm-leaf Manuscripts - Special lecture on Palm-leaf Manuscripts held at Government Museum, Palani.

Tmt. R.D. Thulasi Brinda,
Curator, Government Museum, Krishnagiri.

14.04.2002 Religion and Siddha - Paper presented in the seminar on Medicinal Herbs organized in the Government Museum, Krishnagiri.

Thiru. C. Govindaraj,
Curator, Government Museum, Virudhunagar.

11.05.2002 *Kudumiyanmalai Voor Peyaraivu* - Paper presented in the seminar on 'Pudukkottai Inscriptions' organized and held at Government Museum, Pudukkottai.

PARTICIPATION IN WORKSHOPS, EXPERT COMMITTEES, SEMINARS, TRAINING ETC.

In Chennai

Thiru. M. Mohan, Curator, Education Section.

31.08.2002-16.09.2002 Attended the 10 days training course on 'Conservation of Cultural Property' conducted by National Research Laboratory for Conservation, Lucknow.

Thiru. J.R. Asokan, Curator, Design and Display Section.

10.06.2002-29.06.2002 Participated in the training Programme conducted for the "B" Grade Officers by the Anna Institute of Management, Chennai.

27.08.2002 Participated in the workshop on "Museum Lighting" in the Ntional Museum, New Delhi conducted by the National Museum, National Museum Institute and Bajaj Company Ltd.

Tmt. M.N. Pushpa, Curator, Botany Section.

05.08.2002-23.08.2002 Participated in the 28th Training Programme conducted for the "B" Grade Officers by the Anna Institute of Management, Chennai.

11.09.2002-17.09.2002 Participated in the Capsule Course on Conservation of Cultural Heritage conducted by the Chemical Conservation and Research Laboratory at Chennai.

Thiru. R. Balasubramanian, Curator, Archaeology Section.

16.09.2002-20.09.2002 Participated in the Training Programme on 'Total Quality Management for Public Sector' conducted by Anna Institute of Management, Chennai.

Thiru. K. Sekar, Curator, Children's Museum.

8.07.2002-26.07.2002 Participated in the Training Programme conducted for the "B" Grade Officers by the Anna Institute of Management, Chennai.

Tmt. A. Prema Deepa Rani, Curator, Contemporary Art Gallery.

02.09.2002-20.09.2002 Participated in the Training Programme conducted for the "B" Grade Officers by the Anna Institute of Management, Chennai.

In Districts

Dr. J. Raja Mohamed, Curator, Government Museum, Pudukkottai.

06.08.2002-08.08.2002 Participated in the Inservice training on Improvement of Efficiency, conducted by the Department of Museums at Government Museum, Pudukkottai.

Thiru. M. Gandhi, Curator, Government Museum, Vellore.

06.07.2002- 07.07.2002	Participated in the Departmental Training Programme on “Improvement of Efficiency“ conducted by the Department of Museums at the Government Museum, Pudukkottai.
11.09.2002- 17.09.2002	Participated in the Capsule Course on Conservation of Cultural Heritage conducted by the Chemical Conservation and Research Laboratory, Chennai.

Dr. C. Maheshwaran,
Curator, Government Museum, Erode.

20.06.2002- 22.06.2002	Participated in the Departmental Training Programme on “Improvement of Efficiency” conducted by the Department of Museums at the Government Museum, Salem.
12.09.2002- 14.09.2002	Participated in the workshop on ‘Heritage of the Kongu Region’ at Vellalar College for Women, Erode as a resource person.

Thiru. P. Rajamohan, Curator, Government Museum, Tiruchirappalli.

10.06.2002- 28.06.2002	Participated in the Training Programme conducted for the “B” Grade Officers by the Anna Institute of Management, Chennai.
06.07.2002- 08.07.2002	Participated in the Departmental Training Programme on “Improvement of Efficiency“ conducted by the Department of Museums at the Government Museum, Pudukkottai.

Thiru. P. Sam Sathiaraj, Curator, Government Museum, Madurai.

10.06.2002- 28.06.2002	Participated in the “B”- Grade Officer’s Foundational Training held at the Anna Institute of Management, Chennai.
02.09.2002- 13.09.2002	Participated in the “Orientation Workshop on Care and Maintenance of Cultural Heritage” conducted at the National Research Laboratory for Conservation of Cultural Heritage, Lucknow.

Thiru. P. Kasilingam, Curator, Government Museum, Salem.

20.06.2002- 22.06.2002	Participated in the Departmental Training Programme on the "Improvement of Efficiency" conducted by the Department of Museums at the Government Museum, Salem.
08.07.2002- 26.07.2002	Participated in the Training Programme conducted for the "B" Grade Officers by the Anna Institute of Management, Chennai.

Thiru. J. Mullai Arasu, Curator, Government Museum, Coimbatore.

20.06.2002- 22.06.2002	Participated in the Departmental Training Programme on the "Improvement of Efficiency" conducted by the Department of Museums at the Government Museum, Salem.
08.07.2002- 26.07.2002	Participated in the Training Programme conducted for the "B" Grade Officers by the Anna Institute of Management, Chennai.

Tmt. R.D. Thulasi Brinda,
Curator, Government Museum, Krishnagiri.

05.08.2002- 23.08.2002	Participated in the Training Programme conducted for the "B" Grade Officers by the Anna Institute of Management, Chennai.
11.09.2002- 17.09.2002	Participated in the Capsule Course on Conservation of Cultural Heritage conducted at the Government Museum, Chennai by the Chemical Conservation and Research Laboratory.

Thiru. K. Saravanan, Curator, Government Museum, Nagapattinam.

06.07.2002- 08.07.2002	Participated in the Departmental Training Programme on "Improvement of Efficiency" conducted by the Department of Museums at the Government Museum, Pudukkottai.
02.09.2002- 13.09.2002	Participated in the workshop on 'Care and Maintenance of Cultural Heritage organized by NRLC at Lucknow.

Thiru. T. Packirisamy, Curator, Government Museum, Sivagangai.

06.07.2002-	Participated in the Departmental Training Programme

08.07.2002 on “Improvement of Efficiency“ conducted by the Department of Museums at the Government Museum, Pudukkottai.

Thiru. C. Govindaraj, Curator, Government Museum, Virudhunagar.

22.07.2002- 24.07.2002 Participated in the Departmental Training Programme on “Improvement of Efficiency” conducted by the Department of Museums at the Government Museum, Madurai.

POPULAR LECTURES AND SPECIAL LECTURES

In Chennai

18.06.2002 ‘Identification of Bronzes’ - lecture delivered by Professor B. Watson, Assistant Director (Retd), Forensic Sciences Department, Chennai at Contemporary Art Gallery, Government Museum, Chennai.

05.07.2002 Marine Archaeology and Maritine History Research at Andhra University - lecture delivered by Professor. E.V. Gangadharam, Director (Retd), Centre for Marine Archaeology, Andhra University, Waltair - Government Museum, Chennai.

31.07.2002 ‘Recent Prehistoric Discoveries from the West Coast of Karnataka - lecture delivered by Thiru. L.S. Rao, Superintending Archaeologist, Archaeological Survey of India, Temple Survey Project, Southern Region, Chennai - Government Museum, Chennai.

In Districts

24.04.2002 Salem District Folk Songs by Smt. Mullai Manickam, Assistant H.M., Sri Saradha Aided Primary School - Government Museum, Salem.

05.06.2002 ‘Environmental Protection’ by Je. Shah Jahan, Krishnagiri Junior Chambers - Government Museum, Krishnagiri.

30.06.2002 ‘Development of Tamil Language and Script’ by Thiru. K. Mohan, Deputy Collector (Retd) - Government Museum, Krishnagiri.

22.07.2002 ‘Indian Temples’ by Poet. Perumal Rasu - Government Museum, Krishnagiri.

21.08.2002	'Forgotten Millets' by Thiru. Guru Arumugam, Telecom Department - Government Museum, Salem.
26.08.2002	'Tamil Education' by Je. Suresh Babu, President, Junior Chambers - Government Museum, Krishnagiri.
16.09.2002	'Saiva Ahamas' by Thiru. S. Senthuraan, Executive Officer, A/M Azhagiri Temple - Government Museum, Salem.
18.09.2002	'Social Outlook in the Tamil Film Songs' by Thiru. Vairamalai Anthonisamy, Journalist - Government Museum, Tiruchirappalli.

The Commissioner of Museums, Assistant Director and Curators of the Chennai and District Museums delivered the following Popular and Special Lectures:

In Chennai

Dr. R. Kannan, Ph.D., I.A.S.,
Commissioner of Museums. Chennai.

01.07.2002	"Under Water Archaeology"- lecture delivered in the National Institute of Ocean Technology, Chennai-601 302.
18.08.2002	"Holistic Dating"- Lecture delivered in Rotary Club, Mid Town, Chennai.
05.09.2002	Inaugural Address in the Capsule Course for Idol Wing CID Officers at Government Museum, Chennai.
06.09.2002	Protection of Art and Cultural Heritage (including Legislature)- Lecture delivered in the Capsule Course for Idol Wing CID Officers at Government Museum, Chennai.
11.09.2002	Inaugural Address in the Capsule Course Training for the Archaeologists, HR&CE Officials and Museum Curators for the alternative solution against sandblasting, Chennai.
18.09.2002	"Under Water Archaeology"- lecture delivered in the Academic Staff College, University of Madras, Chennai
06.10.2002	Inaugural Address in the Capsule Course Training for the Archaeologists, HR&CE Officials and Museum Curators for the alternative solution against sandblasting, Trichirappalli.

03.011.2002	“Under Water Archaeology”-lecture delivered in the Rotary Metropolitan Club, Chennai.
11.11.2002	Inaugural Address in the Capsule Course Training for the Archaeologists, HR&CE Officials and Museum Curators for the alternative solution against sandblasting, Madurai.
14.11.2002	“Under Water Archaeology”- lecture delivered in the Defence Metallurgical Laboratory, Hydrabad.
21.12.2001	Kumari Continent and Underwater Archaeology - lecture delivered in the joint sessions of the Indian Archaeology Society, Indian Prehistory Society at Hill Palace, Thirupunithara, Cochin.

Thiru. K. Lakshminarayanan,
Assistant Director, Government Museum, Chennai.

29.07.2002	An Introduction to Museology - lecture delivered to the trainees of the 28th Refresher Course on the ‘Care of Museum Objects’.
05.09.2002	Indian iconography and Indian Treasure-trove Act - lecture delivered to the participants of the Capsule Course on Protection of Cultural Heritage conducted for the Police Officials in the Government Museum, Chennai.

Dr. V. Jeyaraj,
Curator, Chemical Conservation and Research Laboratory, Chennai.

The following lectures were given in the Refresher Course on Care of Museum Objects at Chennai:

15.07.2002-
14.08.2002

1. Preventive Conservation
2. Documentation in Conservation
3. General Principles of Conservation
4. Traditional Methods of Conservation
5. Bio-deterioration
6. Conservation of Organic Objects (Paper, Palm-leaf)
7. Conservation of Inorganic Objects (Stone,Terra-cotta)
8. Conservation of Inorganic Objects (Glass, Glazes, Beads)
9. Conservation of Organic Objects (Textiles, Leather etc)

10. Conservation of Inorganic Materials (Metals)
11. Care of Organic Materials (Wood)
12. Care of Photographs
13. Authentication of Art Objects
14. Care in Storage
15. Dating of Antiquities
16. Insurance and Transportation
17. Disaster Management
18. Neo Conservation

5.09.2002- 6.09.2002 Conservation of Bronzes - lecture delivered to the participants of the Capsule Course on Protection of Cultural Heritage conducted for the Police Officials in collaboration with Police Department in the Government Museum, Chennai.

The following lectures were given to the participants of the Capsule Course on Conservation of Cultural Heritage in Chennai:

11.09.2002 1. Conservation of Metals
17.09.2002 2. Conservation of Organic Objects
3. Conservation of Inorganic Objects
4. Conservation of Paintings
5. Dating of Antiquities

Thiru. P. Jawahar, Curator, Zoology Section.

25.07.2002 Preservation of Zoological Specimens - lecture delivered to the trainees of the 28th Refresher Course on 'Care of Museum Objects'.

Thiru. M. Mohan, Curator, Education Section.

29.07.2002 Museum Education and Care of Museum Objects - lecture delivered to the trainees of the 28th Refresher Course on the 'Care of Museum Objects'

Tmt. R. Shanthi, Curator, Numismatics Section.

03.08.2002 Care of Coin Collection - lecture delivered to the trainees of the 28th Refresher Course on 'Care of Museum Objects'.

06.09.2002 Problems in the Collection of Treasure - trove Coins - lecture delivered to the participants of the Capsule Course on Protection of Cultural Heritage conducted for the Police Officials in the Government Museum, Chennai.

Thiru. J.R. Asokan, Curator, Design and Display Section.

30.07.2002	Display Technique - lecture delivered to the trainees of the 28th Refresher Course on 'Care of Museum Objects'.

Thiru. R. Balasubramanian, Curator, Archaeology Section.

31.07.2002	Archaeological Objects - lecture delivered to the trainees of the 28th Refresher Course on 'Care of Museum Objects'.
03.05.2002- 04.05.2002	Bronzes - lecture delivered at the International School, Kodaikkanal.

Thiru. K. Sekar, Curator, Children's Museum.

09.08.2002	Physics in Conservation - lecture delivered to the trainees of the 28th Refresher Course on the 'Care of Museum Objects'.

Tmt. M.N.Pushpa, Curator, Botany Section.

29.07.2002	Preservation of Botanical Specimens - lecture delivered to the trainees of the 28th Refresher Course on 'Care of Museum Objects'.

Tmt. A. Prema Deepa Rani, Curator, Contemporary Art Gallery.

29.07.2002	Paintings Collection of Chennai Museum - lecture delivered to the trainees of the 28th Refresher Course on 'Care of Museum Objects'.

In Districts

Dr. J. Raja Mohamed, Curator, Government Museum, Pudukkottai.

22.08.2002	Museum Administration - lecture delivered in the inservice training programme to the Curators and Archaeological Officers organised at Government Museum, Madurai.
17.09.2002	Aesthetics of Pudukottai Sculptures - lecture delivered in the Tamil University, Thanjavur.

Thiru.M. Gandhi, Curator, Government Museum, Vellore.

12.07.2002	Vellore Sepoy Mutiny and Importance of Museum - lectures delivered to 120 students of Technical Teacher Training College at Government Museum, Vellore.

17.07.2002 History of Painting - lecture delivered with slide show to 120 students of Technical Teacher Training College at Government Museum, Vellore.

Thiru. P. Raja Mohan,
Curator, Government Museum, Tiruchirappalli.

06.08.2002 'The Buddhist and Jaina Sculptures in the Government Museum, Trichy' - lecture delivered in the Department of History function at Holy Cross College for Women, Tiruchirappalli.

Thiru.P. Sam Sathiaraj, Curator, Government Museum, Madurai.

05.08.2002-
06.08.2002 Museology and Conservation of Museum Objects lectures and gallery talks were delivered to the U.G. and P.G. History students of the Lady Doak College, Madurai.

Thirumathi. R.D.Thulasi Brinda,
Curator, Government Museum, Krishnagiri.

13.05.2002 Uses of Museums - lecture delivered for the women voluntary organization at New Life Community Development Office, Krishnagiri.

Thiru. N. Sundararajan, Curator, Government Museum, Cuddalore.

24.06.2002 History Revealed by the Museum - lecture delivered with slide show at the District Teacher Education Institute, Vadalur.

11.07.2002 Cuddalore Government Museum - Special lecture delivered with slide show for the students of New Millenium Matric School, Cuddalore.

09.08.2002 'Social Leaders of *Sangam*, Pre *Sangam* and Post *Sangam* Periods', 'Identification of Sculptures' - Special lectures for newly recruited police trainees at Temporary Police Training College, Cuddalore.

Thiru. C. Govindaraj, Curator, Government Museum, Virudhunagar.

09.05.2002 *'Thamizh Ezhuthukkalin Valarchi'* - lecture delivered in the Summer Vacation Training Programme conducted by Anbu Illam, Virudhunagar.

RADIO TALKS / TELEVISION PROGRAMMES

10.04.2002- 11.04.2002	"Thininagari Village Treasure - trove Finds" was telecasted and in Raj TV and Jaya TV - Thiru. K. Saravanan, Curator Government Museum, Nagapattinam.
12.04.2002	'Hero - stones Acquired at Kallanthiri Village near Madurai' - An interview telecasted in Sun News -Thiru. P. Sam Sathiaraj, Curator, Government Museum, Madurai.
06.06.2002	Sholaga Tribes of Burgur Hills - Interview telecasted by the A.M.N. TV Channel - Dr. C. Maheshwaran, Curator, Government Museum, Erode.
15.07.2002	'Karma Veerar Kaamaraasar' (in Tamil) - the drafted text was broadcated in AIR, Coimbatore - Dr. C. Maheshwaran, Curator, Government Museum, Erode.
19.07.2002	Curator's interview about three stone sculptures, which were given by the District Collector to the Government Museum, Cuddalore, was telecasted in Jaya TV -Thiru. N. Sundararajan, Curator, Government Museum, Cuddalore.
29.07.2002	Curator's interview was relayed in the Sun TV, Jaya TV and Tamilan TV about the inspection of the new Treasure - trove finds in Krishnagiri, in presence of Mr. Venkataraman, R.D.O. and Mr. Venkatesan, Tahsildar.
01.08.2002	'Treasure-trove Dancing Krishna bronze and twenty Puja articles acquired at Virahanur near Madurai' - Interview telecasted in A.M.N. TV, Madurai - Thiru. P. Sam Sathiaraj, Curator, Government Museum, Madurai.
15.08.2002	'Poets Meet' of Freedom Fighters of Excellence conducted under the joint auspices of the Government Museum, Erode and 'Erode Tamil Sanga Paeravai' was telecasted by the A.M.N. TV channel.
20.08.2002	Conservation of Antiquities was telecasted in the Star TV - Dr. V. Jeyaraj, Curator, Chemical Conservation and Research Laboratory.

RENOVATIONS AND IMPROVEMENTS TO MUSEUMS / GALLERIES GOVERNMENT MUSEUM, CHENNAI.

Archaeology Section

119 lime stone sculptures from Amaravathi were removed from the walls of the Amaravathi Gallery in the Government Museum, Chennai and kept in storage.

Anthropology Section

126 old gramphone records containing languages, spoken in South India, apart from Tamil, Telugu, Malayalam, Kannada; dialects such as Amindavi, Malayalam, Baduga, Toda, Savara, Kui have been recorded digitally. These old records are available in six CDs for sale, to correlate with them, publication on Gramophone Records of the Languages and Dialects of the Madras Presidency (text of passages) has also been reprinted.

Zoology Section

Display was organised in the gigantic diorama showcase for display of Tapir in the Foreign Animals Gallery. Display was organised in the newly made four modern showcases with dichroic lighting arrangements by displaying Kangaroo, Ostrich, Cassowary and American mammals.

Numismatic Section

Plaster cast coins of Mysore Sultans and Delhi Sultans were displayed along with colour photographs in the gallery.

Children's Museum

In the Physical Science Gallery, 6 electrical and 6 electronics gadgets were prepared, displayed and changed every month to explain the basic principles of electricity and electronics.

Display was organized in the newly made 8 panel showcases of Kid's Corner. 8 new gadgets were designed for display in the Physical Science Gallery showcases.

Design and Display Section

Executed the work in connection with the Rock and Cave Art Gallery guide book, Touch Screen and coordinated with other Curators to document their "AA" and "A" Grade Museum objects.

Contemporary Art Gallery

Building renovation works like changing the weathering tiles, brick works in the ventilators to prevent water leakage, changing the broken glasses in the ventilators and painting works were carried out by the Public Works Department.

In Districts

Madurai

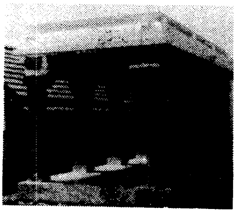
Eight unique bronzes were displayed in the 3 newly made modern showcases of international standard. The Commissioner of Museums Dr. R. Kannan, Ph.D., I.A.S., Prof. Dr. R. Jayaraman, C.E.D., Madurai Kamaraj University, Thiru. K. Lakshminarayanan, Assistant Director of Museums look on the display.

Vellore

Photographs of *Therukkoothu*, nests of weaver birds and a green snake were displayed suitably.

Kanniyakumari

An *Ettukaal Mandapam* (19'X6') was constructed in the museum campus using the stones collected from Kalukuttam village, Kanniyakumari district by utilizing the Kanniyakumari District Collector's Fund (Rs. 1,12,000/-).



An Introduction Gallery containing historical places, tourist spots of Kanniyakumari district was setup with 13 laminated colour photographs (12"X15") in the museum by utilizing the District Collector's Fund (Rs. 6,500).

A new name board (10' X 3') of the museum and cattle trap were provided at the entrance by utilizing the District Collector's Fund (Rs.49,500/-).

Erode

Baduga Musician - oil on canvas painting, 4 wood carvings of *Navagraha* in bas - relief, 4 *Thanjavur* water colour paintings, a set of bronzes, confiscated from Karungalpalayam - 1988, a showcase depicting textile creativities of Erode district, a stone sculpture of Garudalwar, 3 Naga stone sculptures, 2 pale colour stone sculptures, palm - leaf manuscripts and 2 stone sculptures in worshipping posture were added in the display.

Notice board of the museum, replacement of broken glass panes, conservation work on displayed photographs, reorganization works in Numismatic Gallery, Wood Carvings Gallery, Sculpture Garden, Manuscriptology Gallery, Introduction Gallery and conservation work on skull of Indian gaur, skull of sambhar, skull of deer, saw bone of pristine saw fish were carried out.

Three fire extinquishers were placed properly after obtaining proper certificate from the Fire Station, Erode.

Palani

Eleven images of copper alloy and one dhubakkal belonging to 17th Century AD, collected from Natham taluk, Dindigul district and 18 paintings depicting 18 Siddhas were painted and displayed in the gallery.

Sivagangai

Display was done in the newly made 8 vertical showcases by displaying exhibits pertaining to all the sections. Burial urns were displayed in a separate gallery.

EXHIBITION

In Chennai and Districts

14.04.2002- 24.04.2002	Special Exhibition on Siddha Medicinal Herbs- Government Museum, Krishnagiri.
03.05.2002- 07.05.2002	Exhibition on Tribal Antiquities at Lawrence School Lovedale - Government Museum, Udhagamandalam.
10.05.2002	Exhibition on Philatelic Expo 2002 - 30000 stamps were exhibited- Government Museum, Salem.
11.5.2002 - 20.5.2002	Special Exhibition on Pudukkottai Inscriptions - Government Museum, Pudukkottai.
16.05.2002	Exhibition on Child Art, Glass Paintings, Dolls, Artificial

	Flowers and Photographs - on the valedictory day of the month-long Summer Camp- Government Museum, Madurai.
15.06.2002- 30.06.2002	Museum Photographs were displayed in the Tourism Department stall in the *Maangani* Trade Fair Exhibition - Government Museum, Krishnagiri.
22.07.2002- 31.07.2002	Special Art Exhibition on *Thiruthalangal* - Government Museum, Krishnagiri.
04.08.2002- 12.08.2002	Special Exhibition on Art Works of Artist Thiru. V.N. Shanmugham-Government Museum, Vellore.
14.08.2002	Special Exhibition on 'Indian National Army' in the wake of Independence Day - Government Museum, Sivagangai.
15.08.2002- 19.08.2002	Exhibition on Care of Museum Objects - Chemical Conservation and Research Laboratory, Chennai. The Commissioner of Museums, Dr. R. Kannan Ph.D., I.A.S., Thiru. K. Lakshminarayanan, Assistant Director of Museums look on.
17.09.2002	Photographic Exhibition on Conservation of Cultural Heritage - Chemical Conservation and Research Laboratory.

PUBLICATIONS

1. Iconography of Jain Images in the Districts of Tamilnadu - Dr. R. Kannan, Ph.D., I.A.S., Commissioner and Thiru. K. Lakshminarayanan, Assistant Director.
2. A Manual of Pudukkottai State - 2 Volumes (The Pudukkottai State manuals published by the Pudukkottai State before 1940) - reprinted and published.
3. Inscriptions of Pudukkottai State - 1 Volume (Texts) - reprinted and published.
4. Inscriptions of Pudukkottai State - translated into English - 3 Volumes - reprinted and published.

5. Conservation of Thanjavur Panel Paintings - Dr. V. Jeyaraj, Curator, Chemical Conservation and Research Laboratory, Chennai.

6. Museum's Journal (Volume - 7) Chief Editor, Dr. R. Kannan, I.A.S., Editors, Dr. V. Jeyaraj and Thiru. K. Sekar, Curators.

7. General Brochure on Government Museum, Chennai - Dr. R. Kannan, Ph.D., I.A.S., Commissioner, K. Lakshminarayanan, Assistant Director and Dr. V. Jeyaraj. Pamphlet Series : No.1/ 2001 / Department of Museums

8. Brochure on Paintings in the National Art Gallery and the Contemporary Art Gallery of the Government Museum, Chennai - Dr. R. Kannan, Ph.D., I.A.S., Commissioner, K. Sekar, Curator, M. Mohan, Curator, Gallery of Contemporary Art. Pamphlet Series: No. 2 / 2001 / Department of Museums

9. Brochure on Childern's Museum - Dr. R. Kannan, Ph.D., I.A.S., Commissioner, K. Sekar, Curator, Childern's Museum. Pamphlet Series : No. 3 / 2002 / Department of Museums

10. Brochure on Chemical Conservation and Research Laboratory - Dr. V. Jeyaraj, Curator, Chemical Conservation and Research Laboratory. Brochure Series - Chemical Conservation-2 / 2002

11. Brochure on Rock and Cave Art Gallery - Dr. R. Kannan, Ph.D., I.A.S., Commissioner. Pamphlet Series : No. 4 / 2002 / Department of Museums

LIST OF THE MUSEUM'S PUBLICATIONS AVAILABLE FOR SALE IN CHENNAI AND DISTRICT MUSEUMS:

Sl. No.	Titles and Authors	Price Rs.
1.	Guide to the Important Monuments in and around Pudukkottai – M. Raghupathy	30.00
2.	Guide to the Archaeological Galleries – An Introduction to South Indian Temple Architecture and Sculpture – F.H.Gravely and C. Sivaramamurti	25.00
3.	Guide to the Buddhist Antiquities – A. Aiyappan and P.R. Srinivasan	30.00
4.	Illustrations of Indian Sculptures Mostly Southern - for use with the Guide to the Archaeological Galleries – F.H.Gravely and C.Sivaramamurti	25.00
5.	Select Bronzes in the Chennai Museum – M. Raman, I.A.S.	35.00
6.	Guide to the Bronze Gallery – V.N.Srinivasa Desikan	50.00
7.	A Souvenir Released on the Occasion of the Exhibition on South Indian Bronzes – M.Raman, I.A.S.	51.00
8.	Amaravati Sculptures in the Chennai Government Museum – C.Sivaramamurti	210.00
9.	Nagapattinam and Other Buddhist Bronzes – T.N.Ramachandran	117.00
10.	Bronzes of South India – P.R.Srinivasan	386.00
11.	Hand Book of the Madras Government Museum	80.00
12.	Notes on Hindu Images – F.H.Gravely and C.Sivaramamurti	12.00
13.	Guide to the Contemporary Art Gallery – M.Mohan	60.00
14.	Catalogue of Jain Sculptures in the Collection of Government Museum, Chennai – R.Balasubramanian	20.00

15.	Catalogue of Stone Sculptures in the Collection of the Government Museum, Trichy – N.Sankaranarayana	20.00
16.	Government Museum, Chennai (A small handbook)	5.00
17.	Government Museum, Chennai (Colour Folder)	10.00
18.	Ancient Industries of Tamil Nadu – Natana Kasinathan	35.00
19.	Sri Vaishnava Brahmins – Diwan Bahadur K.Rangachar	100.00
20.	Early Eastern Chalukya Sculptures – C.Sivaramamurti	70.00
21.	Scripts in and Around India – V.Kannaiyan	50.00
22.	Kalaichelvangal (Tamil) – R. Nagasamy	50.00
23.	Buddhist Sculptures from Stupa Near Goli Village, Gundur District – T.N.Ramachandran	40.00
24.	Catalogue of Copper Plate Grants – R.Srinivasa Ayyangar	40.00
25.	List of Inscriptions on Tombs or Monuments in Madras – Julian James Cotton, C.S.	110.00
26.	Story of Buddhism – A.Aiyappan and P.R.Srinivasan	115.00
27.	Nolamba Sculptures – C.Sivaramamurti	50.00
28.	Indian Epigraphy and South Indian Scripts	285.00
29.	Centenary Souvenir, Government Museum, Chennai (1851 – 1951)	175.00
30.	The Three Main Styles of Temple Architecture Recognised by Silpa Sastras – F.H.Gravely and T.N.Ramachandran	20.00
31.	Beginnings of the Traditions of South Indian Temple Architecture – P.R.Srinivasan	20.00

32.	An Outline of Indian Temple Architecture – F.H.Gravely	20.00
33.	Government Museum, Chennai as a Research Institution – N.Devasahayam and V. Jeyaraj	35.00
34.	Proceedings of the Seminar on Conservation of Cultural Heritage – V.Jeyaraj	15.00
35.	Handbook on Conservation in Museums – V. Jeyaraj	35.00
36.	Care of Museum Objects – N. Harinarayana and V. Jeyaraj	20.00
37.	Guide to the Anthropological Exhibits – C.J. Jeyadev	39.00
38.	Adivasis of Kodiakkarai – A.V.N. Sarma	9.75
39.	The Tali in Relation to 'South Indian Initiation Rites – C.J. Jayadev	7.55
40.	The Harappan and the Vedic Cultures: Musings on Some Moot Problems – K.R. Srinivasan	15.00
41.	Catalogue of the Prehistoric Antiquities – Alexander Rea	35.00
42.	Catalogue of Musical Instruments Exhibited in the Government Museum, Chennai – P. Sambamoorthy	35.00
43.	The Adichanallur Skulls- S.Zuckerman	25.00
44.	Excavation by the Madras Museum at Kilpauk, Panunda, Punnol and Sankavaram -M.D. Raghavan	25.00
45.	Nayars of Malabar - F.Fawcett	35.00
46.	Report on the Socio Economic Conditions of the Aborginal Tribes of the Province of Madras -A. Aiyappan	85.00
47.	Ancient Culture and Tribal Culture (Tamil) -C.J. Jeyadev and M. Ragupathy	25.00
48.	The Foote Collection of Indian Prehistoric	

	and Protohistoric Antiquities -Robert Bruce Foote	200.00
49.	Puppets in the Collection of the Madras Government Museum -N. Devasahayam	55.00
50.	Catalogue of Vijayanagar Coins in the Madras Government Museum -N. Sankaranarayana	74.00
51.	Catalogue of Venetian Coins in the Madras Government Museum -T.G. Aravamuthan	40.00
52.	Catalogue of Venetian Coins in the Government Museum, Madras -N. Sankaranarayana	25.00
53.	Medals in the Collection of the Chennai Government Museum -N. Sankaranarayana	31.50
54.	Select Satavahana Coins -N. Devasahayam and M. Ramarao	20.00
55.	Descriptive Catalogue of the Butterflies in the Collection of Madras Government Museum -S.T.Satyamurti	231.00
56.	The Echinodermata in the Collection of the Madras Government Museum -S.T.Satyamurti	36.40
57.	The Birds' Eggs and Nests in the Collection of the Madras Government Museum -S.T.Satyamurti	43.95
58.	Grasshoppers in the Collection of the Government Museum, Madras-G.Kesavaram	85.00
59.	Guide to the Bird Gallery - S.T.Satyamurti	11.30
60.	Mammals (Tamil) - S.T.Satyamurti	8.30
61.	The Preservation of Zoological Specimens -P. Jawahar	10.00
62.	Handbook of Museum Technique -A. Aiyappan & S.T. Satyamurti	71.00
63.	Guide to the Fish Gallery - S.T.Satyamurti	65.00

64.	Guide to the Lizards, Crocodiles, Turtles and Tortoises Exhibited in the Reptile Gallery - S.T. Satyamurti	55.00
65.	Guide to the Galleries of Foreign Animals, General Zoology, Skeletal Exhibits and Amphibians -S.T. Satyamurti	50.00
66.	Guide to the Snakes Exhibited in the Reptile Gallery – S.T. Satyamurti	20.00
67.	Guide to the Invertebrate Galleries – S.T. Satyamurti	7.05
68.	The Wild Ferns of Madras City and Its Immediate Neighbourhood – M.S. Chandrasekar	7.10
69.	Flowering Plants of Madras City and Its Immediate Neighbourhood – P.V. Mayuranathan	308
70.	Medicinal Plants (Tamil) – M.N. Pushpa	10.00
71.	Special Features of Siddha Medicine (Tamil)	25.00
72.	Guide to the Principal Exhibits in the Geological Galleries – E. George Jesudosan	13.55
73.	Coins of India through the Ages – P.N. Mohandoss	10.00
74.	Temples of Periyar District (Tamil) – V. Jeyaraj	70.00
75.	Handbook on Preservation of Botanical Specimens – M.N. Pushpa	21.00
76.	Preservation of Records (Tamil) – V. Jeyaraj	15.00
77.	Documentation on the Cannons in the Government Museum, Chennai (Madras) – R. Kannan, I.A.S. and R. Balasubramanian	50.00
78.	Whales (Tamil) – J.R. Asokan	10.00
79.	Holistic Approach to Dating in Ancient History, Especially Indian History – R. Kannan, I.A.S.	35.00
80.	Crocodiles (Tamil) – J.R. Asokan	15.00
81.	Scientific Facts about Snakes (Tamil) – J.R. Asokan	20.00
82.	An Introduction to the Chemical	

	Conservation and Research Laboratory – V. Jeyaraj	5.00
83.	Medicinal Plants Used in the Siddha System of Medicine – M.N. Pushpa	15.00
84.	Snakes - An Introduction – J.R. Asokan	10.00
85.	Restoration of Oil Paintings from Madras Christian College – V. Jeyaraj	15.00
86.	Guide to the Government Museum, Erode (Tamil) – V. Jeyaraj	15.00
87.	Guide to the Government Museum, Nagapattinam (Tamil) – V. Jeyaraj, J.R. Asokan, K. Saravanan	10.00
88.	Government Museum, Nagapattinam – An Overview - V. Jeyaraj, K. Saravanan	25.00
89.	Iconography of the Jain Images in the Government Museum, Chennai (Madras) – R. Kannan, I.A.S., K. Lakshminarayanan	200.00
90.	Proceedings of the Seminar on Our Role in Protecting Cultural Heritage – R. Kannan, I.A.S., V. Jeyaraj, J.R. Asokan, and R. Balasubramanian	70.00
91.	Nayak Sculptures of Virdhunagar District (Tamil) – K. Lakshminarayanan	52.00
92.	Manual for Disaster Management in Museums – R.Kannan, I.A.S.,	
93.	Manual for Disaster Management in Museums (Tamil) – R. Kannan, I.A.S.	
94.	Museum's Journal (October 1999 - March 2000) – R. Kannan, I.A.S., V. Jeyaraj and K. Sekar	40.00
95.	Museum's Journal (October 1999 - March 2000) (Tamil) – R. Kannan, I.A.S., V. Jeyaraj and K. Sekar	40.00
96.	Museum's Journal (April - September 2000) – R. Kannan, I.A.S., V. Jeyaraj and K. Sekar	40.00
97.	Museum's Journal (April - September 2000) (Tamil) – R. Kannan, I.A.S., V. Jeyaraj and K.Sekar	40.00

98.	Museum's Journal (October 2000 - March 2001) – R.Kannan, I.A.S., V. Jeyaraj and K.Sekar	50.00
99.	Museum's Journal (October 2000-March 2001) (Tamil) – R. Kannan, I.A.S., V. Jeyaraj and K. Sekar	50.00
100.	Museum's Journal (April - September 2001) – R. Kannan, I.A.S., V. Jeyaraj and K. Sekar	50.00
101.	Museum's Journal (April - September 2001) (Tamil) – R. Kannan, I.A.S., V. Jeyaraj and K.Sekar	50.00
102.	Museum's Journal (October 2001 - March 2002) – R. Kannan, I.A.S., V. Jeyaraj and K. Sekar	60.00
103.	Museum's Journal (October 2001 - March 2002) (Tamil) – R. Kannan, I.A.S., V. Jeyaraj and K.Sekar	50.00

PAMPHLETS

104.	General Brochure on Government Museum, Chennai - Dr. R. Kannan, Ph.D., I.A.S., Commissioner, K. Lakshminarayanan, Assistant Director and Dr. V. Jeyaraj. Pamphlet Series : No. 1 / 2001 / Department of Museums	15.00
105.	Brochure on Paintings in the National Art Gallery and the Contemporary Art Gallery of the Government Museum, Chennai - Dr. R. Kannan, Ph.D., I.A.S., Commissioner, K. Sekar, Curator, M. Mohan, Curator, Gallery of Contemporary Art. Pamphlet Series : No. 2 / 2001 / Department of Museums	15.00
106.	Brochure on Childern's Museum - Dr. R. Kannan, Ph.D., I.A.S., Commissioner, K. Sekar, Curator, Childern's Museum. Pamphlet Series : No. 3 / 2002 / Department of Museums	5.00
107.	Brochure on Chemical Conservation and Research Laboratory, - Dr. V. Jeyaraj, Curator, Chemical Conservation and Research Laboratory. Brochure Series - Chemical Conservation-2 / 2002	5.00
108.	Brochure on Rock and Cave Art Gallery - Dr. R. Kannan, Ph.D., I.A.S., Commissioner. Pamphlet Series : No. 4 / 2002 / Department of Museums	15.00

ARTICLES PUBLISHED

Dr. R. Kannan, Ph.D., I.A.S., Commissioner of Museums.

1. Museums, Scenography and Tourist Attractions - Museum's Journal, Vol. 7, Government Museum, Chennai, May, 2002.
2. Managing Change in the Museum Profession - Museum's Journal, Vol. 7, Government Museum, Chennai, May, 2002.
3. Cannons of Pudukottai and Tyaga Durg (Near Kallakurichi) - Museum's Journal, Vol. 7, Government Museum, Chennai, May, 2002.

Dr. V. Jeyaraj,
Curator, Chemical Conservation and Research Laboratory.

1. Neo Conservation, - Museum's Journal, Vol. 7, (English) Government Museum, Chennai, May, 2002.
2. The Art of Weaving in Erode District - Past and Present, Museum's Journal, Vol. 7, (Tamil) Government Museum, Chennai, May, 2002.
3. Where Gods Come Alive? 2000- Edited by Dr. Baldev Raj
   1. Scientific Investigations on South Indian Bronzes.
   2. Characterization.
   3. Conservation.

Thiru. T. R. Asokan, Curator, Design nd Display Section.

Killer Whales - Museums Journal, Vol 7, Government Museum, Chennai, May, 2002.

Thirumathi. M. N. Pushpa,
Curator, Botany Section, Government Museum, Chennai.

Hibiscus - Museum's Journal, Vol. 7, Government Museum, Chennai, May, 2002.

Thiru. R. Balasubramanian, Curator, Archaeology Section, Government Museum, Chennai.

Aspects of Stupa - Museum's Journal, Vol. 7, Government Museum, Chennai, May, 2002.

Dr. J. Raja Mohamed, Curator, Government Museum, Pudukkottai.

New Buddha Sculpture from Pudukkottai- Museum's Journal, Vol. 7, (Tamil & English) Government Museum, Chennai, May, 2002.

Thiru M. Gandhi, Curator, Government Museum, Vellore.

1. Dantivarman's Inscription at Balekuppam.
2. Pallalakuppam Inscription.
3. Alarkuppam inscription.
4. Durga Sculptures in Vandivasi Taluk- News.
5. Sculptures of Vilai Village in Arni Taluk -News.
   All these were published in Avvanam no. 13 published at Tirunelveli by Tamil Nadu Archaeological Society, Thanjavur July 2002.

Thiru. P. Sam Sathiyaraj, Curator, Government Museum, Madurai.

1. Inscribed Pillar from Uthamapalayam - Article published in the Avanam, Vol. 13, July 2002, Tamilnadu Archaeological Society, Tanjavur.
2. Two Unique Memorial Stones in the Collection of the Government Museum, Madurai- Museum's Journal, Vol. 7, (English) Government Museum, Chennai, May, 2002.

Thiru. C. Govindaraj, Curator, Government Museum, Virudhunagar.

Kodumbalur Muvarkoil - A New Look– Museum's Journal - Vol. 7, May, 2002.

Thirumathi. R.D. Thulasi Brinda,
Curator, Government Museum, Krishnagiri.

Krishnagiri Hill - Rock Art Paintings - Museum's Journal, Vol. 7, (Tamil) Government Museum, Chennai, May, 2002.

Thiru. T. Packirisamy Curator, Government Museum, Sivagangai.

The Bats - Museum's Journal, Vol. 7, (English) Government Museum, Chennai, May, 2002.

Thiru N. Sundararajan, Curator, Government Museum, Cuddalore.

Fort St. David, Cuddalore -Museum's Journal, Vol. 7, (English) Government Museum, Chennai, May, 2002.

RESEARCH ACTIVITIES

1. Fingerprinting of South Indian Bronzes in collaboration with the Indira Gandhi Centre for Atomic Research, Kalpakkam (Chemical Conservation and Research Laboratory and Archaeology Section).
2. Holographying Bronzes in collaboration with the Centre for Laser Technology, Anna University, Chennai (Chemical Conservation and Research Laboratory and Archaeology Section).
3. Study of the Wall and Ceiling Paintings in the A/M. Thiagarajasamy Temple, Tiruvarur (Chemical Conservation and Research Laboratory).

REPORTS

Dr. V. Jeyaraj, Curator, Chemical Conservation and Research Laboratory prepared a report on Conservation of two Paintings from Thiru. E. Hariharane.

Dr. C. Maheshwaran,
Curator, Government Museum, Erode.

Report pertaining to the workshop on 'Heritage of the Kongu Region' conducted by the museum under the joint auspices of the Department of History, Vellalar College for Women, Erode was prepared and sent to the college authorities.

CONSERVATION WORK

25 bronzes, 12 Amaravati lime stone objects, 10 stone sculptures, 26 paintings like oils paintings, water colour paintings from Pudukkottai and Chennai museums, 2000 coins, a large brass lamp stand, 10 leather puppets, 14 guns, 13 textiles, 10 tribal materials, 14 miscellaneous objects, 2 large sized anchors, 2 large sized wooden doors and a large sized Meriah Sacrifice wooden post etc., were suitably treated and conserved - Chemical Conservation and Research Laboratory.

Preservative coating was given to hundred plants in the reserve collection - Botany Section.

Dry mounted specimens of sambar deer, mouse deer, kangaroo were suitably conserved. Preservatory treatment was given to the insects, echinoderms, reptiles and mammals in reserve collection (356 Nos.).

All the palm-leaf manuscripts of the Government Museum, Palani were preserved by the Curator and staff of the museum.

CONSULTANCY CONSERVATION WORK

Two large size Thanjavur panel paintings were restored for the A/M Meenakshi Sundareswar Temple, Madurai.

One Thanjavur painting was restored for Mrs. Shetty, Annanagar, Chennai - Chemical Conservation and Research Laboratory.

STAFF CHANGES

Dr. C. Maheshwaran, Curator, Education Section was transferred and posted as Curator,Government Museum, Erode on 29.04.2002.

Thiru. M. Mohan, Curator for Contemporary Art Gallery was transferred and posted as Curator, Education Section, Government Museum, Chennai on 29.04.2002.

Tmt. A. Prema Deepa Rani, Gallery Guide, Children's Museum was promoted and posted as Curator for Gallery of Contemporary Art, Government Museum, Chennai on 29.04.2002.

TOURS UNDERTAKEN

Dr. R. Kannan, Ph.D., I.A.S., Commissioner of Museums.

27.04.2002- 02.05.2002	Cuddalore - Inspected Government, Museum.
06.05.2002- 13.05.2002	Salem, Dharmapuri, Krishnagiri, Hosur, Tiruchi, Pudukottai, Tranquebar, Mailaduthurai - Inaugurated Epigraphy Training at Salem. Met Collector, looked at wayside Jain Sculptures and visited Site Museums. Inspected rock art paintings and temple renovation at Hosur. Inauguration of Epigraphy Seminar and releasing of reprinting books. Inspected Papanasam Granary in Sri Naganathaswamy temple, Manambadi, Kumbakonam taluk, Palivanathaswamy temple and the Danish Fort renovation work
23.05.2002- 25.05.2002	Madurai - Attended the Valedictory function "Workshop on Conservation of Tanjore Paintings"
09.06.2002	Tranquebar - Inspected Tranquebar Fort Conservation work and Site Museums
10.062002	Vedaranyam, - Inspected Vedaranyam monuments and temple paintings and sculptures

11-06-2002	Cuddalore - Inspected Government, Museum
21-06-2002- 23-06-2002	Salem - delivered a lecture on Museum Administration for the district Curators of Salem region and to inspect the antique Jain Bronzes in the Siva Temple at Aragalur
05.07.2002- 10.07.2002	Mayiladuthurai, Thanjavur, Tranquebar, Pudukottai - Inspected tranquebar Fort renovation work . Delivered a lecture on Museum Administration for District Curators of Pudukkottai region.
13-07-2002- 17-07-2002	Mayiladuthurai, Nagore, Tranquebar, Thanjavur - Inspected Tranquebar renovation work and attended the inaugural function.
20-07-2002- 24-07-2002	Tiruneveli, Madurai - Attended the Ascending of the Aavanam Seminar and inspected the excavation work progress at Mangudi, Tirunalveli district.
26-07-2002- 27-07-2002	New Delhi - Preliminary meeting of two projects held at National Museum Institute, New Delhi
11-08-2002- 13-08-2002	Coimbatore -Inspected the excavation sites in progress at Perur, Coimbatore district
01-09-2002	Tiruthani, R.K.Pet - Inspected the archaeological excavation site
07.09.2002 - 10.09.2002	Coimbatore, Erode - Inspected Coimbatore Archaeological excavation site and G.D.Naidu Museum. Inspected Erode Museum
11.09.2002- 12.09.2002	Delhi - To meet the President of India in connection with the setting up of Industrial History Gallery

Dr. V. Jeyaraj, Curator,
Chemical Conservation and Research Laboratory.

09.04.2002	To study the paintings on the wall as well as the ceilings of the Thiagarajasamy Temple, Tiruvarur.
14.05.2002- 24.05.2002	To conduct training on restoration of the Thanjavur Paintings at Madurai.
27.07.2002	Post training tour to Mahabalipuram and Muttukkadu to study the condition of monuments and objects along with the participants of the 28th Refresher Course on 'Care of Museum Objects'.

Thiru.M. Mohan, Curator (in charge), Geology Section.

28.08.2002	To bring an iron anchor (200 years old) from Kovalam village, Kanchipuram District to Government Museum, Chennai.

Thiru. R.Balasubramanian, Curator, Archaeology Section.

14.07.2002-15.07.2002	To participate in the inauguration of the restored Tarangambadi Fort at Tarangambadi.
18.08.2002-22.08.2002	To take digital photograph of the palm - leaf manuscripts at Pulipparai Asramam, Palani.

Thiru. J. R. Asokan, Curator, Design and Display Section.

14.07.2002-15.07.2002	To participate in the inauguration of the restored Tarangambadi Fort at Tarangambadi.

Dr. C. Maheswaran,
Curator, Government Museum, Erode.

25.06.2002	To study the Megalithic sites at 'Solar' near Erode and identified 11 burial sites.
27.06.2002	To verify the Museum Objects as per Accession Register at Government Museum, Karur.
02.08.2002	To study the mutilated stone sculptures at Bhavani Kooduthurai, fossil bone deposits at Mettuparai and collected the fossil bone samples.
08.09.2002	To study the 'Cult of Kongalayi', Archaeological sites, and 6 Chithode Tribal hamlets near C. Mettupalayam.

Thiru. M. Gandhi, Curator, Government Museum, Vellore.

29.05.2002	To verify the exhibits in the Government Museum, Cuddalore.
30.05.2002	To verify the exhibits in the Government Museum, Krishnagiri.
12.06.2002	To inspect the Palankoil village, Polur taluk.

Thiru. P. Kasilingam, Curator, Government Museum, Salem.

03.07.2002-04.07.2002	To verify the objects in Government Museum, Erode.

08.07.2002- 26.07.2002	To under go 'B' Grade Officers training at Anna Institute of Management, Chennai.
12.09.2002	To inspect the treasure - trove objects in Namakkal Taluk Office.

Thiru. P. Rajamohan, Curator, Government Museum, Tiruchirappalli.

11.05.2002	To inspect a burial urn and two potteries, which were unearthed in Siruthaiyur at Lalkudi Taluk Office.

Thiru. P. Sam Sathiaraj, Curator, Government Museum, Madurai.

04.07.2002	To verify the museum objects at Government Museum, Tirunalvelli.

Thiru. A. Periasamy, Curator, Government Museum, Palani.

11.07.2002	To recieve the treasure-trove fionts Rept at the Natham Taluk Office, Dindigul district.

Thiru. N. Soundrapandian,
Curator, Government Museum, Udhagamandalam.

17.05.2002	To study the tribal materials at Balada Tribal Museum Research Centre.
04.07.2002- 05.07.2002	To verify the museum objects as per the Accession Register at Government Museum, Coimbatore.

Thirumathi. R.D. Thulasi Brinda,
Curator, Government Museum, Krishnagiri.

16.04.2002	To study the Jain sculptures in Adiyaman Kottai, Dharumapuri and Archaeological Museum Jain sculptures.
17.062002	To inspect treasure - trove objects (gold coins) at Taluk Office, Krishnagiri.
28.07.2002	To inspect treasure - trove objects at Taluk Office, Krishnagiri.
05.08.2002- 23.08.2002	To undergo 'B' Grade Officers training at Anna Institute of Management, Chennai.
11.09.2002- 17.09.2002	To participate in the Capsule Course on 'Preservation of Cultural Heritage conducted at Government Museum, Chennai.

Thiru. G. Karunanidhi, Curator, Government Museum, Tiruvarur.

12.08.2002	To inspect the Treasure - trove objects at Taluk Office, Nannilam.
02.09.2002	To inspect the Treasure - trove objects at Taluk Office, Kodavasal.

Thiru. K. Saravanan, Curator, Government Museum, Nagapattinam.

19.04.2002	To inspect the Kelasatanathapuram Memorial Stone at Sirkazhi Taluk Office.
23.04.2002	To inspect the Ayakkaranpulam Sethi village Treasure - trove objects at Vedaranyam Taluk Office.
24.04.2002	To inspect the Treasure - trove objects at Mailaduthurai Taluk Office.
10.06.2002	Study tour to Vedaranyam and Kodiyakkarai along with the Commissioner of Museums to examine the historically important monuments.
11.06.2002	To study the Ganesa stone sculptures in Narrunai Eswarar temple at Punjai village and Veludainathar temple at Thirukkarukavur.
06.07.2002- 08.07.2002	To participate in the Curator's training course conducted at Government Museum, Pudukkottai.
09.07.2002	To examine the restoration work of Tarangambadi (Tranquebar) Fort, Tarangambadi.
20.07.2002	To inspect the Thiruvaimur village treasure - trove objects at Thirukkuvalai Taluk Office.
24.07.2002	To inspect the whale skeleton of Thethakudi (north) village at Vedaranyam Taluk Office.

Thiru. C. Govindaraj, Curator, Government Museum, Virudhunagar.

20.05.2002	To study the wooden temple vahanas of Sattiram Sevalpatti temple.
18.06.2002	To verify the museum objects as per Accession Register at Government Museum, Ramanathapuram.
23.06.2002	To verify the museum objects as per Accession Register at Government Museum, Kanniyakumari.

27.06.2002	To verify the museum objects as per Accession Register at Government Museum, Sivagangai.
07.08.2002	To study the Mangudi excavation objects.

Tmt. J. M. Gandhimathi,
Curator, Government Museum, Kanchipuram.

19.07.2002	To study the worship practices of village temples at Pachaiamman Temple, Ayyankarkulam.
12.08.2002	To study the epigraphs at Yadhotakari temple along with Dr. K. Rajagopal.

Tmt. S. Krishnammal,
Curator, Government Museum, Kanniyakumari.

17.06.2002	To inspect the archaeological collections at the Nagercoil State Archaeology Office.
20.06.2002	To inspect the Bootha Pandi, Boothalingasamy 'Temple' car wheel.
21.06.2002	To verify the objects at the Virudhu Nagar Government Museum.
25.06.2002	To inspect the Megalithic potteries at Taluk Office Villavancode.
08.07.2002	To verify the objects at the Madurai Government Museum.
06.08.2002	To inspect the Treasure - trove objects at Taluk Office Thovalai.
16.08.2002	To inspect the sati stone at Puliyoorkurichi village.
30.08.2002	To meet the Travancore Maharaja Sri Marthanda Varma at Trivandrum and collect rare photos of Travancore.
11.09.2002	To inspect the Travancore inscriptions at Padmanabhapuram Palace.

Thiru. J. Mullaiarasu, Curator, Government Museum, Coimbatore.

20.06.2002	To attend the Curator's 'Improvement in Efficiency' training course held at Government Museum, Salem.
02.07.2002	To verify the Museum Objects as per Accession Register at Government Museum, Udhagamandalam.

8.07.2002- 26.07.2002	To undertake training at Anna Institute of Management, Chennai.
15.08.2002	To study the archaeological excavation site at Perur, Coimbatore district.

Thiru. T. Packirisamy,
Curator, Government Museum, Sivagangai and additional charge Government Museum, Ramanathapuram.

4.04.2002	To inspect the Treasure - trove bronzes of Devipattinam at Taluk Office, Ramanathapuram.
10.04.2002	To study the Sankarapathy Fort, located at Karaikudi - Devakottai national highway.
5.06.2002	To verify the museum objects as per the Accession Register at Government Museum, Palani.
13.06.2002	To attend ' Assembly Assurance Committee' meeting held at the Collectorate, Theni.
18.06.2002	To inspect the Treasure - trove Chola coins of Kanchirankudi at Taluk Office, Ramanathapuram.
26.06.2002	To inspect the Treasure - trove bronzes of Ragunathapuram, white cement sculptures of Amman acquired from Maraikkayarpattinam and Krishna acquired from Alakankulam at Taluk Office, Ramanathapuram.
01.08.2002	To inspect the Treasure - trove bronzes of Kuthiraimoli at R.D.O. Office, Paramakkudi.
01.08.2002	To inspect the stone sculpture of Subramaniya acquired from Kovilmariyur, at Taluk Office, Ramanathapuram.
02.08.2002	To study the prehistoric cave Pandia's inscriptions at Malaikoluntheeshwara temple hill, at Thirumalai, Sivagangai.
13.08.2002	To study the Namanoor Tank, a Megalithic site.

Thiru. N. Sundararajan, Curator, Government Museum, Cuddalore.

02.04.2002	To inspect the Treasure - trove objects like ear stud, nose stud (gold) at Taluk Office, Tindivanam.
04.04.2002	To study the stone sculpture of Durga, which was unearthed at Kondamur village, Vanur taluk, Villupuram.

15.05.2002	To verify the museum objects as per the Accession Register at Government Museum, Vellore.
19.06.2002	To inspect the Treasure - trove objects of coins (inferior gold) at Taluk Office, Ulundurpet.

VISITORS

During the period from April to September 2002, the number of visitors, who visited the museums are furnished below including school children:

Chennai	1,32,385
Pudukkottai	45,230
Salem	7509
Maduai	30,720
Tiruchirappalli	10,052
Vellore	25,591
Erode	3,500
Udhagamandalam	4,255
Cuddalore	4,431
Tirunelveli	7,255
Kanyakumari	2,942
Krishnagiri	3,800
Palani	10,613
Tiruvarur	15,416
Nagapattinam	4,878
Kaancheepuram	3,189
Ramanathapuram	1,209
Sivagangai	6,813
Karur	1,846
Virudhunagar	2,576

APPRECIATION LETTERS

It was delightful to hear from you and receive the Museum Journal.

I am happy to see that you have highlighted some little known facts about the artillery used in or acquired by the former Pudukkottai State. Here I must mention that the reprinting of the Pudukkottai Manuals was a laudable effort on your part. Many scholars approach on for a glimpse of the rather brittle volumes in my possession. Now I can rest easy!

Rama Devi R. Tondaiman
17.10.2002
Residency,
Rajagopalapuram
Pudukkottai

Thank you for your letter dated 20 September 2002, and for sending us copies of the Bulletin of the Chennai Government Museum (to which we already subscribe) and of the Museum's Journal. We have not previously seen the latter title, and although I am afraid we are unable to undertake an exchange of publications with you, we will order it through our normal supplier. Thank you for drawing this journal to our attention.

(Ms.) Catherine Pickett
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SOME OF THE PRESS COVERAGE

Strokes of enthusiasm

KNOTS OF young men and women, and some middle-aged persons crowded the Centenary Exhibition Hall, Government Museum, Chennai last Friday (October 11). Each busily sketching figures from paper-prints of Rajasthani folklore. The young lot comprised visual communication graduates who were animators and wanted some experience in form and colour. The circular room echoed the dull humming of enthusiastic youngsters as they discussed the pictures and drawing these on paper. Some young instructors slipped from one knot to the other, explaining the finer aspects of painting. That no participant even looked up to see who was walking in or out showed the group's total focus.

The Rajasthani painting workshop was jointly organised by the Government Museum, Chennai and the National Museum of Mankind, Bhopal, and each participant had to pay Rs.250 for the 10-day workshop – a song really at Rs.25 a day for expert guidance by instructors from Udaipur. On the first day, there were 25 participants, and the organisers were certain that many more would follow. "This is the first time we have a tie-up with the Bhopal museum," said M. Mohan, special grade curator (education), Government Museum, Chennai.

today," said V. Ashok Vardhan, museum assistant, National Museum of Mankind, Bhopal. The subtle influence that changed the preference of youth was at the cost of local culture and heritage. "We are trying to arrest this trend," said Vardhan. There did not seem to be anything wrong with the modern, but the heritage could be lost as summarily as did the traditions of native Americans under relentless pressure from the homestead immigrants from Europe.

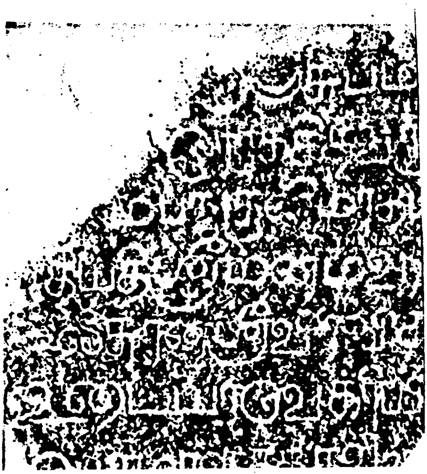
"We will be introducing the group to all the *sailis* (patterns) of Rajasthan. Each

15th century inscription

By Our Staff Reporter

VELLORE, JULY 24. An inscription belonging to the Vijayanagar dynasty dating back to the 15th century A.D. was discovered recently at Ramanaickanpettai village in Vaniyambadi taluk. The stone slab containing the inscription was currently found being used by the local people for washing clothes.

M. Gandhi, curator of the Government Museum here, said the inscription contained 23 lines in Tamil and the epigraph provided information about land donation by Viravijayaraya, who ruled the Vijayanagar empire in 15th century A.D.



MUSEUMS PLAY a vital role in protecting and preserving the symbols of cultural diversity of the people for posterity.

The word, museum, originates from the Greek, "mouseion," meaning "seat of the Muses."

Therefore, museums are supposed to be storehouses of knowledge, with a representative collection of objects of historical, scientific, artistic and cultural interest.

The Government museum at Pudukottai, one of the oldest and the second largest in the State next only to the museum in Chennai, is a veritable repository at that.

Established by the Tondaiman rulers of the erstwhile Princely State of Pudukottai, the museum was outstanding collection of nearly 500 species of well preserved and stuffed bir insects, fish, amphibians, reptiles and mammals.

The skeletal remains of whale, washed ashore nea Cuddalore in 1955, is one prized possessions of the museum.

The whale's lower jaws, about 17 ft in length, stan imposingly at the entranc the mammals gallery.

The architectural and sculptural wealth of the district is well represented the collection of about 30 excellent bronzes and sculptures.

A major draw among foreigners, the bronzes inc some rare pieces such as t 9th century Vishnu, the 11 century Somaskanda panel and the 12th century

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Stone id

Express News Service

Madurai, May 20: A stone sculpture of village deity Ayyanar has been found in a tank at Avaniyapuram by a local resident Sukumaran and handed over to the Government Museum by the Tahsildar, Madurai South, O Venkatesan.

According to P Sam Sathiaraj, Curator of the Government Museum, Madurai, the sculpture belongs to the 18th or 19th century A.D. It measurers about 65 cm in height and 105 cm in breadth. It is made of granite stone.

The sculpture shows the deity seated in the middle

High-tech preservation

THE MADURAI Museum has initiated a new move. An elevated facelift has been given to the Government Museum. Now the archaeologists need not worry about the treasured bronze collections gathering dust.

These priceless statues are sitting pretty inside the high-tech showcases of "international standard".

rare collections.

The Commissioner of Archaeology, R.Kannan, has designed them.

Though the Chennai Museum prides itself of such trendy showcases, they are also found in the museum at Gangaikondacholapuram, besides the Madurai Museum.

The recently installed showcases contain the 15th century idols from Cheramahadevi near Tirunelveli, the Nataraj idol of the later Chola period and the 10th century Vishnu idol from Sowdapatti in Tirumangalam taluk.

These five-feet long, seven-feet high and two-feet broad high technology showcases have 'Saint Gobain' French

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MADURAI, AUG. 6. A bronze idol of the 'dancing' Bala Krishna and 20 bronze pooja articles, belonging to the 17th century, were found recently in a well at Viraganur near here.

According to the curator of the Madurai Government Museum, P.Sam Sathiaraj, the two-foot Lord Krishna was in a dancing posture with his left leg resting on the 'padmasana'.

A ball of butter was seen in his right hand whereas his left hand was found stretched out. A beautifully ornamented crown was seen on His head.

The Lord's ears were adorned with 'patrakundalas' and 'mak-

Ayyanar sculpture found

By Our Staff Reporter

MADURAI, MAY 20. An 18th century sculpture of the village god, Ayyanar, was found in a tank at Avaniapuram near here by a local resident today. According to the Government Museum Curator, P. Sam Sathiaraj, the , 65-cm tall and 105-cm wide sculpture is carved out of granite stone. Seated in the 'virasana' posture, Lord Ayyanar is accompanied by his consorts, 'Purana' and 'Pushkala'. The rare sculpture has been kept in the museum for public view, Mr. Sathia-

■ IF SUMMER is here, can the camps be far behind? As the schools prepare to organise academic and non-academic camps for the young ones, the Government Museum, in association with the Gandhi Museum, has come out with an offer of a 'summer training camp for developing histrionic talents'.

Professionals are to provide training for the participants in performing, visual and martial arts, handicrafts, photography, rangoli, yoga, general knowledge, spoken English and Hindi and HAM radio operations. The classes will be held between 10 a.m. and 1-00 p.m. from April 15 to May 14. Eligible age : five to 18 years. For Bharatanatyam, dollmaking, yoga and fabric and glass painting, only girls and housewives will be admitted (without any age limit). Those opting for HAM operation should be above 16 years of age.If interested, T. Ravichandran, Programme Officer, Gandhi Museum, can be contacted from today for enrolment. Further details can be had by dialling 531060 or 650298.

An eternal hall of fame

GLANCING THROUGH photographs depicting the Indian freedom struggle is bound to conjure up a mixture of emotions, especially to the younger generation, as very few would have had an opportunity to mingle with those who had participated in the fight against the British.

only 75 responded to the plea. It was felt that the message had probably not reached the others. Notable among the freedom fighters whose photographs and contribution to the struggle was on display were, E. V. Ramasamy Naicker, A. Subramanian, M. K. Vadivel Mudaliar, and 'Gandhi' Palaniyandi.

The latter

announcing welfare measures for them and their families.

However, the Salem Government Museum has gone one step ahead by opening a 'picture gallery', exclusively comprising photographs of freedom fighters from this region. The curator, Kasilingam, had widely publicised, calling for the portraits of and pictures of the freedom fighters, along with a write-up, highlighting their contribution and heroic deeds.

As per the government records, there were 140 freedom fighters in the district. Of this

confines of the four walls of jails failed to douse the flames of liberty burning in their hearts. Most of them were fired by the spirit to free their country, and joined the struggle when they were in the prime of their youth.

Despite the space constraints, the gallery is going to be a permanent feature of the museum as it stands testimony to the contribution from this region towards the freedom struggle.

By A.V.Ragunathan in Salem
Photo: P. Goutham

Museum acquires 5 'hero stones'

By Our Staff Reporter

MADURAI, AUG.6. The Government Museum, here, has acquired five 'hero stones' from Kallandiri.

According to the Museum Curator, P. Sam Sathiaraj, the stones were found in a private land at Kallandiri.

The landowners handed over the stones to the museum, on a direction from the District Collector. These stones belong to the 17th century and were erected in memory of those who sacrificed their lives in heroic deeds.

A few of the stones receive now, carried the carvings c men standing with a sword an a bow. There was ample evidence for the 'hero stone worship' in Tamil literature.

However, the recent find di not carry any inscriptional evidences.

FRONTLINE, JANUARY 31, 2003

Congealed history

The Government Museum in Chennai, which has rich collections and an impressive history, is celebrating its 151st anniversary.

N. HARINARAYANA

JAWAHARLAL NEHRU had a flair for coining phrases. He displayed it, as usual, when he spoke at the inauguration of the centenary celebrations of the Government Museum, Chennai, way back in 1951.

"I suppose it is some kind of congealed history," he said, talking about the museum, and continued, "some kind of trying to put a bit of the past locked up in your cabinets and placed so that you may have a glimpse of it."

Now, as the museum plans to celebrate its 151st anniversary, there is more congealed history in it, more of the past locked up in its cabinets and put on show for the public to gaze at and be entertained and enlightened. On April 29, 1851, it was not so. An austere note in the Fort St. George Gazette of the day proclaimed its arrival at the College in Nungambakkam "open to all visitors, every day, Sunday excepted, from 6 to 9 a.m. and from 2 to half-past 6 p.m."

The Madras Literary Society, which had been campaigning since 1828 for the setting up of the museum, offered its collection of geological specimens numbering about 1,100. To these were added a few sculptures found on the college grounds itself and the duplicates of exhibits left out from those collected for the Great Exhibi

restoration and conservation works.

The restoration of the sandstone compound wall was not an easy job. Many portions of the long wall were missing.

The compound wall of the Government Museum, Chennai, which was restored to its original state.

man Dorma door hinges, Taiwanese exhaust fans and silica gel to preclude moisture inside. These showcases are the first of their kind in India. A cosmic Nataraja, lit up by fibre optics and installed on a rotating showcase, will be on display soon.

The Bronze Gallery and the Contemporary Art Gallery are being air-conditioned, and they will have modern lighting. Original paintings of Raja Ravi Verma, paintings of Governors of the Madras Presidency, and water colours are being re-arranged.

The 19th century display in the Zoology Gal-

ARTICLES

KUMARI CONTINENT AND UNDERWATER ARCHAEOLOGY

Dr. R. KANNAN,
B.Com., M.B.A., C.A.I.I.B., B.L.,
M.Soc.Sci. (U.K.), Ph.D., I.A.S.*

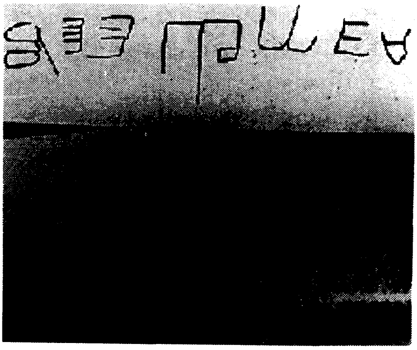
In this paper, we look at the comparatively recent origin of marine (underwater) archaeology in India. Archaeology meant excavation on land till about forty years ago. We also see how compared to the North and North West of India, less progress has been made in this field in South India, despite a long coastline and many rivers. We use a holistic approach based on the approach on the monograph 'A holistic Approach to Dating in Ancient History'. We therefore use the 'soft' approach of literature, historical tradition, astrological astronomy to speculate on the areas near the coast where underwater archaeology will yield good results. A Participatory Approach among the different agencies in the field like the Navy, scientists, historians and others in the field in a spirit of sharing alone will yield good results. This is in addition to the traditional 'hard' approach of going by previous finds of artefacts in archaeology. The paper concludes that a multi-disciplinary participatory approach involving different agencies like traditional archaeologists, historians, geologists, remote sensing space satellite scientists, global information and positioning systems personnel, naval divers and oceanographers etc will yield better results than the traditional approach of going by the opinions of a predominantly single set like historians alone etc. From available historical and other sources, past experience in Poompuhar, Visakhapatnam, Dwaraka and the recent Gulf of Cambay underwater expedition, it appears that there is a very fair chance of discovering at least some elements of the ancient Tamil Civilisation (loosely called Lemuria or Kumari continent) that is said to have perished in Holocene sea level changes.

Introduction

In recent years, it has been uniformly agreed that the holistic approach to dating involving a multi-disciplinary approach to dating events in the ancient past, first propounded by this writer (Kannan, Dr. R., 2000), is the best approach where there is no agreed historical source like inscriptions or monuments. Even where these are available to correlate them so that the conclusions are less assailable has also been agreed upon. Marine (underwater) archaeology is a comparatively new field where this participatory approach involving specialists from different fields will yield excellent results. It will enable us to discover our past pertaining to those areas, which are in the realm of speculation as yet. Participatory approach is stressed because in this approach, the specialists in each discipline have to be respected and made to feel that they are equal participants so that the end result gives a synergistic output.

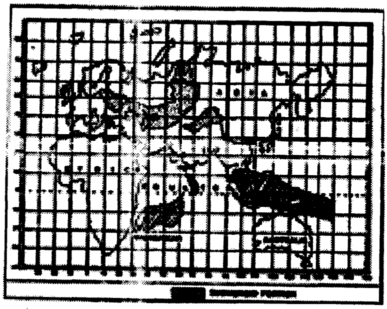
A problem with professionals is 'Normal Learning' i.e. the body of knowledge that has been developed over the years in that discipline. They cannot easily accept new ideas, which question the ideas or theories that they have been taught or accepted over the years. This ignores the reality that other people might know better, though they are not professionals. Participatory Rural Appraisal professionals call this Indigenous Technical Knowledge. This results in ignoring our traditional literature, folk tales and the knowledge of fishermen as they are not considered 'professionals'.

Dwaraka considered to be the westernmost point of India was long considered a myth put forth by the epic, the Mahabharata. It was only when Dr. S.R.Rao, the pioneer marine archaeologist in the 1980s, discovered hard evidence that correlated fairly closely to the traditional dates of the Mahabharata that underwater archaeology began to be considered on par with traditional land archaeology. In fact it gave more startling finds than land based excavation. Poompuhar underwater diving around 1982 AD by Prof. K.V.Raman and the State Department of Archaeology confirmed the existence of the port and its destruction by the sea as stated in Tamil literature.



Bet Dwaraka, Pottery with Post Harappan Script

Despite being early beginners, South Indian marine archaeology has not taken off to the extent as in North West India, where periodically great results are announced. The recent Gulf of Cambay exploration where the artefacts like beads, a tree trunk stump dated at 8000 BC by independent scientific dating is a case in point. This writer participated in a National Workshop on Marine Archaeology in the Gulf of Cambay at the invitation of Prof. Ravindran, the Director of the National Institute of Oceanographic Training, Chennai. It was held on 1-7-2002. Even theories like those of A.V.Pandya of Vallabh Vidyanagar propounded in 1969, like the paleo shape of Sourashtra once given up as discredited, were revived as likely to be true in the light of the Gulf of Cambay findings. In South India also, exploration along river beds and coast lines have been stressed as likely to reveal findings that would validate ancient lore literary and historical that are now dismissed as myth (Kannan, Dr. R., 2000, p. 22). This would include the ancient Tamil Civilisation said to have been lost in Holocene sea level transgressions.



ANCIENT WORLD - 8000 B.C.
(Sampath Iyengar G.S., 1988, From Kannan Dr. R, 2000)

In this paper, we look at how this approach will enable us to discover Kumari continent for which till date we have no archaeological confirmation. We use literary and historical sources that throw light on the ancient sea settlements, ports, temples etc. Marine archaeology can help to confirm or remove these speculations. This is the direction we hope to chart for the future.

Literary Sources

We have a lot of Tamil literature, which states that there was an ancient Tamil kingdom consisting of 49 territories. The picture that they paint is of a hill range or Ghat, which seems to be a continuation of the Western Ghats below Kanyakumari. Two rivers Pahruli and Kumari seemed to have flowed into the sea (Please see the speculative map of that time period below). The mountain range appears to be identified as the Mahameru Mountain. This makes sense as the traditional almanac (Snake *Vakya Panchang*) refers to this mountain while calculating the amount of rainfall that will occur in India (Kannan, Dr. R, 2000, p.17).

Iraiyanar Agaporul (Bhavanandam Pillai, Rao Bahadur, 1916, pp.1-8) is a work that can be dated as of the 11th or 12th Century AD based on its style. It states that the First Tamil *Sangam* with its headquarters at South Madurai (under the sea) had the first King as Kaichi Vazhudi and is supposed to have lasted for 4440 years. The participants included Tripurantaka (Lord Siva) who destroyed three cities, Kubera etc. These are mythological figures but it is notable that Ravana was the grandson of Kubera. Agathiam was the grammar book followed.

Panini's Sanskrit grammar *Ashtadhayi* is identified by scientists as following *Aintiram* and containing elements from it. This point about the common origin and Sanskrit being a refinement from Proto-Tamil has already been made by this writer (Kannan, Dr.R.,2000, p.13). *Aintiram* was supposed to have been unveiled at the Tamil Academy presided by King Nilamtaru Tharuvil Pandian (Ganapati Stapathi, Dr., 2001, pp.56-57). Mayan is claimed to have levied during the First Sangam period (circa 10,000 BC) in the Kumari continent then called Jambudvipa (Sanskrit) Navalantheevu (Tamil) (ibid, p. 41). This was the ancient island shape of India before continental drift made it into its triangular form. William Levacy claims that is the paleo shape India conformed to *Vastu Shastra* and therefore was like USA is today, leader among nations. The present triangular shape is held to be the cause of its problems thereafter (Levacy, William R., 1999). He is the author of the Sanskrit work on *Vastu Shastra,* though Dr. Stapathi claims his authorship for Suryasiddhanta as well (Ganapati Stapathi, Dr., 2001,p.123). He claims that Pranava Veda expounded by Mayan was the first Veda, which Veda Vyasa also acknowledged (Ganapati Stapathi, Dr., 2001,p.73). That the Pranava Mantra is the essence of Hinduism and unchallenged by all.

While Dr. Stapathi claims the author of *Aintiram* to be Mayan (2001,p.139), this writer feels that he must be Indran or Indra. The statement of Sir Mortimer Wheeler about Indra as a destroyer of forts, Purandara has already been refuted by this writer (2000, p.27). Dr. Stapathi refers to the *Indra Vizha* (festival) held in Poompuhar (2001, p.139). This also refutes the Aryan Invasion theory of 19th Century English historians.

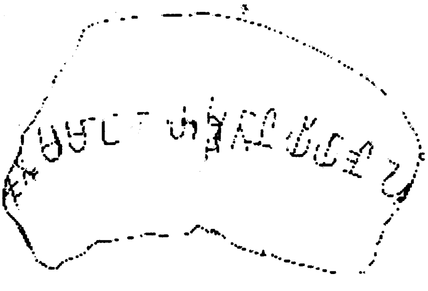
The Second Tamil *Sangam* is supposed to have lasted for 2000 years with Kapatapuram (swallowed by the sea) as its headquarters (Kannan, Dr. R, 2000, p.18). *Tolkappiyam* was the grammar followed. Sage Agastya is shown as a member of both *Sangams,* which makes us feel that Agastya was a *Peetah* title like Sankaracharya and not an individual. Indra is supposed to be a post as well. Suchindram mythology is that Indra worships Lord Siva in the night even today and there are signs like disturbance to the articles of worship to indicate this.

A Tamil poet describes in his work how the Pandya King, *Vadivalamba Nindra Pandyan* led his people back to Kanyakumari (land) even as the sea was swallowing the land behind him. Two poets separated by a long period of time describing the same event shows that some event has taken place.

The Third Tamil *Sangam,* which alone is accepted by historians, is said to have lasted 1850 years, though historians date it from 3rd Century BC to 2nd Century AD. Nakkiran is stated to be the greatest poet of this *Sangam.* The literary works of this period are available, while for the earlier periods references and commentaries like Paayiram alone are available. This should not make us shut our minds but have a spirit of enquiry with an open mind.

Triangulation of Literary Sources with Other Sources Recent Excavation at Maangudi and Perur

Uraipaayiram by Idyananattu King Manakudiyan Paal Vanna Devan, an *Aganaanuru* (a poetical work of 400 stanzas) refers to the three kinds of Tamil developed in Madurai. In *Puranaanuru* (a 3rd Century BC work) Thalaiyaalankanathu Cheru alias Neduchezhiyan refers to Maangudi Marudan and that several Tamil poets were in a *Sangam* under his leadership. In the recent excavation at Maangudi near Rajapalayam, the State Archaeology Department has found several artefacts relating to this period. One potsherd black and red ware with the inscription in Tamil Brahmi '*ku ru maa n kaa la a ta n yi yaa nai pe*?' (14 letters – i.e. the plate was donated by Aadhan of Kurumangalam) is a very important find. It can be dated to the 3rd Century BC by paeleography. It can be compared with inscriptions around Madurai like Tirupparunkundram of a similar period. The site has megaliths and



Maangudi Black & Redware Potsherd with Tamil Brahmi Letters microliths in the same pit. This shows that successive layers of civilisation in a continuum that dates from at least 4000 BC by conventional dating. We are getting it independently dated by Pollen Analysis from Institute of Archaeology, University College, London. This period covers the Second *Sangam* period. This shows that Tamil literature is not full of imagination unrelated to facts. If this is true we may have to give greater credence to literary sources as this writer has stated (Kannan Dr.R., 2000, p.21, 29) and not dismiss it as imagination. However, at Perur we could get beads from 2nd Century AD and potsherds from 500 AD onwards. A terracotta headgear of a king resembles that found in the Amaravati collection of the Chennai Museum, which is circa 2nd Century BC to 2nd Century AD. This shows that settlement of people first occurred in coastal areas and then they spread into the hinterland, which was forested. This is also stated in Tamil epics.

The author of *Manimegalai* also speaks of Madurai developing Tamil. Absence of such references to the Chola and Chera capitals is noteworthy. The word *Sangam* can be said to have come into vogue after the advent of Buddhism in the 6th Century BC, since it refers to the *Sangha.* Before that the ancient Tamil word appears to be poet *kazhagam.* Some claim that the Jains introduced this word (Meenakshi Dr., 1936, p.227). Absence of references to Jainism in Tolkappiyam leads us to conclude that it is more ancient than Jainism (Ayyangar, Sesha, T.R.,1937). The Brahmi inscriptions found in the caves of Madurai are dated as circa 3rd Century BC (Venkatasamy, Mylai Seeni, 1970, pp.34-36). They are the work of Jains. Hence, *Tolkappiyam* clearly has to be predated the 3rd Century BC. *Tolkappiyam* exhibits the influence of *Aindra Vykarana*, a pre-Panini system of Sanskrit grammar, but it is free from Buddhist influence. This demonstrates that it is older than even 6th Century BC. Therefore, the claims of its antiquity are not to be dismissed lightly.

Dr. Ganapati Stapathi contends that Dakshinamurthy, one of the forms of Lord Shiva is seated on Mount *Kailas,* which is Mahendragiri that existed before the *Mahapralaya* (sea-deluge). The Mahendragiri near Kanyakumari is named after the old place swallowed by the sea in *Lemuria.* The new settlement is named after the old one, such as Birmingham etc., in USA are named after the old ones in UK by the migrants. Dr. Stapathi also visited the Mayan settlements in South America and claims the structures like pyramids etc are based on *Vastu Shastra,* that the Mayan of India is the Maya of South America. This is due to the grid pattern being followed by them also. The Mayan links with Indian mythology, sculpture and architecture have also been pointed out by this writer (Kannan, Dr. R., 2001, pp.82-97). This article was well received by Dr. Stephen Inglis, the Director- General of the Canadian Museum of Civilisation, Montreal which he conveyed by e-mail. The reference to the Suchindram temple by Dr. Stapathi (2001, p. 138) near Kanyakumari is a remarkable coincidence. This writer referred to sculptures in the same temple in his article. This was done independently more than two years before he met Dr. Stapathi and got a copy of his book.

In the book on 'Holistic Dating', this writer refers to Plate tectonics while discussing the Lemurian theory (Kannan, Dr. R., 2000, p.15). It is now an accepted fact in Geology that the Indian peninsular plate has moved from the Indian Ocean and is pushing against the Asian continental landmass creating the Himalayan Fold Mountains. Dr. Stapathi also refers to the same theory and makes the point that Tamils from *Lemuria* fled to the North and settled the whole of India, when the Tamil Academy was swallowed by the sea. The Pandian King, Nilam Thiruvil Pandian got the name by gifting lands to the affected may be in the then forested areas in the present peninsular and North India. This point is also independently made by this writer (Kannan Dr. R., 2000, pp.15-17). How have we thought alike? There must be some truth somewhere waiting to be discovered by marine archaeology.

The ancient city of Kapatapuram (Sanskrit word for Kadavoor, Alaivai in Tamil – i.e. gateway to the waves or sea) is held to refer to Dwaraka in the North (since the meaning is the same). Even today Alwaye near Ernakulam is small town on the backwater near the Arabian Sea. The Pandian port of Korkai is said to belong to the Third Tamil *Sangam.* Recent excavation shows the C-14 dating as 785 BC. There may have been some other towns called as Alavai, since verse 266 of the *Aganaanuru* refers to Tiruchendur as Alaivai. This shows that new towns were named after the old destroyed towns. Madurai itself is called as Alaivai as shown in the Brahmi inscription in Alagarkoil of 3rd Century BC. The name must have been changed to Alavai later. The *Thevaram* reference of the 7th Century AD is the earliest reference to it. Others hold that there was one city in the South with the name (Stapathi, Ganapati, Dr., 2001, p.126; Kannan, Dr. R., 2000, p18. ; Ramachandran, V.G., 1998, p.39) which was about the period of the Mahabharata and was probably destroyed in the same *Pralaya* that destroyed Dwaraka.

There is a *Vastu-Shastra* called *Aintiram,* which resembles Mayamata's *Vastu Shastra* (Ganapati Stapathi, Dr., 2001,p.139). *Tolkappiam,* the most ancient extant Tamil grammar is based on *Aintiram* as attested by Panamparanar, the author of *Paayiram,* the commentator of Tolkappiam. He also compliments Tolkappiyar for having studied *Aindiram's* grammar, which he describes as a Sanskrit work. He does not refer to Panini, whose work is considered to be at least of the 4th Century BC if not earlier.

Kapatapuram is supposed to have been swallowed by the sea after *Tolkappiyam* as mentioned in Iraiyanar's *Agapporul. Silapadikaram* mentions Pahruli River and a mountain range swallowed by the sea. There is mention of Kapatapuram in Valmiki's Ramayana and Vyasas's Mahabharata. The Mahabharata has now been dated to 3101 BC both by astrological astronomy and near to that date by S.R.Rao's findings (1998, p.52). Chanakya in Arthasastra (4th Century BC) refers to pearls from 'Pandya Kapatam'. The sea incursion around 504 BC or 306 BC in a Ceylonese work is said to have swallowed a lot of land. The incursion responsible for the loss of Kapatapuram might have been the one of 506 BC. The Sri Lanka of today is not the Lanka of Ramayana is clear from Alberuni's Indica (1878), which states that it is an island in the Indian Ocean on the Lanka Rekha or line i.e. intersection of 77° E longitude, the longitude of Ujjain and the Equator.

Dr.S.Padmanabhan contends that the Pazhayaru in today's Kanyakumari District is the Pahruli river referred to in ancient Tamil literature (Padmanabhan, Dr. S., 1999, p.23).

Anthropology

Prof. G. Elliot Smith based on the work of Bruce Foote in the 19th Century showed how the South Indians were related to the aborigines of Australia using the Adichanallur skull finds (Zuckerman, S., 2000, p.1). This used the discipline of Anthropology using skull shapes etc.

DNA Analysis

Using the modern scientific technique of DNA analysis, it is noticed that mitochondrial DNA shows that Eve was not in West Asia but in the Indian Ocean i.e. at present in South Africa, Madagascar belt. This was shown in Discovery Channel also. This also triangulates in PRA terminology, the theory of Lemuria, as a landmass lost in subsidence. The latest theory is that sea levels were about 300 feet lower than the present levels about 15000 years ago. This is corroborated by finds of plants buried in Antarctica. The Discovery and National Geographic Channels showed computer-simulated images of how the earth looked at that point of time. This they did by analysing the icebergs in the Arctic and Antarctic Oceans.

Remote Sensing

Remote sensing and ground penetrating radar are available now. There are subterranean channels of River Saraswati seen by remote sensing satellite. It connects to Allahabad. The dried up bed of the other branch is seen in Rajasthan and Gujarat (Kannan, Dr. R., 2000, p. 29). The British historians and their followers dismissed the river as mythical till the 1970s. The shifting of the river over time is clearly seen.

It has its value, in deciphering various stages of sea level stand within a certain period in an area. (Loveson V.J. et. al., 1990, p.179). Sea level variation is eustatic i.e. global or local. It can be recognised in two ways viz. (i) Vertical displacement as observed from marine terraces and (ii) Horizontal displacement of shoreline changes as ridges. Marine terraces right at the shorelines are very well exposed to field study. But, since the shoreline changes are regional in extent covering larger area, it may not be possible to appreciate the existence of such feature in the field investigation at the first instance. Remotely sensed imagery records such features, leading to shoreline changes clearly. With the aid of these imagery patterns, one can identify and differentiate the beach ridges with the swales, backwater systems and coastal lake patterns without difficulty. Only with few samples and limited inspections, it is possible to confirm such a larger structure (Loveson, V.J. et. al., 1990, p.179).

Each ridge denotes one ancient sea level stand. About 4 or 5 prominent major beach ridges are recognised all along the Tamilnadu coast (Loveson, V.J. et.al. , 1990, p.180). By comparing this, one can suggest that once Vaigai might have been flowing along Ramanathapuram to Periapatnam coast. This is also confirmed by the bathymetric study around

Bathymetry Around the East-coast Showing a Gentle Slope (sea transgression)

Periapatnam offshore area (Loveson & Rajamanickam,1989; Loveson, V.J. et.al, 1990, p.188).

The fact that the coastal zone between Idinthakarai to Cape Comorin is provided with only one beach ridge arrangement depicts either the uplift of the coastal area or stability of coastal zone (Loveson, V.J. et.al., 1990, p.189).

Remote sensing must be used along other analytical methods like carbon dating, sedimentological analysis, ground truth confirmation, etc.

Marine Archaeology

Seismic profiling, Sonar, Magnetic Profiling and *Photogrammetry* are some of the modern techniques in Marine Archaeology (Refer Kannan Dr. R, 2000, p.8). Global Positioning Systems based on Global Information Systems give the exact coordinates of a site. This solves the problem of looking for a needle in the haystack as the problem of locating a site in Marine Archaeology is called. Off the coast of Andhra, a sea-side civilisation is expected to be discovered (Rao, T.C.S., 1988, p.73). Dr. S.R. Rao has used Thermo Luminescence (TL) dating to show that Dwaraka and Bet Dwaraka existed at 3520 BP (Before Present) in 1988 AD based on analyses of pottery recovered from the sea in the sunken port (Rao S.R., 1998, p. 52). Parts of a wooden hull of a boat were sent to the Institute of Paleo Botany, Lucknow. A stone anchor was found at Dwaraka about 500 metres inside the sea on the continental shelf. If excavation is undertaken further into the sea, the real date will emerge, which will corroborate the astrological cum astronomical date of Lord Krishna as about 3102 BC.

It has been cut off from the sea due to shoaling of the Gulf of Cambay as a result of Holocene sea level rise (Nigam, R., 1988, p.20). This is corroborated by remote sensing.

Based on Dendro Chronology, it is felt that Dwaraka must have experienced six transgressions and regressions of the sea, which accounts for the several layers of settlement encountered during archaeological excavation (Negi, J.G. & Tiwari, R.K., 1988, p.79- 82). Estimates of the Holocene sea level transgression have an important bearing on most archaeological problems. Nair and Hashimi have found sea level rising at 10 metres per 1000 years about 10000 to 110000 years ago on the western continental margin of India. They base this estimate on coral growth and drowned banks of coral in the Lakshadweep sea. They conclude that Holocene sea level rise was of the order of a rapid drowning (Nair, R.R.& Hashimi, N.H., 1988, p.86). Shoreline recession in Bet Dwaraka and Dwaraka area is around 4 metres per annum for the period 1848 to 1977 AD (Pathak et.al, from Kannan, Dr. R., 2000, p.29). This makes the Mahabharata story of submersion highly plausible.

In Andhra, Dr. E.V. Gangadharan, the Professor of Marine Archaeology had come to participate in the seminar on the Gulf of Cambay excavation. He stated during his talk in the Government Museum, Chennai that he has discovered a temple that has gone underwater of the Chola period at the mouth of Visakhapatnam port.

When we went to recover the anchor in Kovalam village near Mahabalipuram, we found a lot of big sculptures of the Pallava period. The fishermen also said that more such sculptures were in the sea and could be recovered with a little effort. This shows that the event of 540 AD of sea transgression that swallowed the temples of Mahabalipuram is also real i. e. the Seven Pagoda Theory. Dr.K.H.Vora, the scientist from the National Institute of Oceanography, Goa met me after their recent diving effort and described that they had promising finds off Poompuhar and Mahabalipuram. I wanted to issue a press release. But they wanted clearance. Mr. James Hancock pre empted them and being a foreigner got wide coverage. I have described how Mr. Hancock omitted India in his Discovery Channel documentary, while giving out his Seven Sages (Sapta Rishi) Theory (Kannan, Dr. R., 2000, p.33). It appears he is now covering India after realising his omission.

The Sapta Rishi Era or Manvatharadi was started on Friday 21st November 8576 BC (Raghavan, K.S., 1998 from Kannan, Dr. R, 2000, p.34). Sraddhadeva Vaivaswata was crowed *Manu*, the first king of human society of this age (Manwantara-Mahayuga) by the *Saptarishis* in the year 8576 BC, *Magha Sukla Prathama*, when the Vernal Equinox was in the first quarter of the *Magha Nakshatra*, 120° on the Indian standard Ecliptic. Imprints of Indian tradition and culture some of which are six to seven thousand years old are found even now in far off lands like Indo-China, Indonesia Mexico, Central America, Peru (Sakhyananda, 1998, p. 26). The Chaldeans as far back as 7000 BC speak of an Egyptian priest-astrologer named Manetho and that Satyacharya's disciple was also Manita.

At Valinockam, the vertical sequence of the marine terrace of about 3.5 m indicates various stages of marine transgression and high sea-levels during the Holocene or late interglacial periods. At least three stages are clearly noticed. (Loveson, V.J. & Rajamanickam, G.V., 2000, p.87). All these marine terrace landforms indicate that the high stand levels originated from marine transgressions in the past and are associated with neotectonism of a later interglacial period (Loveson, V.J. & Rajamanickam, G.V., 2000, p.87).

Another ancient port called *Alagankulam* situated 15 km north of Mandapam, flourished during the 9th Century A.D., in the Pandyan Kingdom. At present, it is 2.5 kms landwards of the present shoreline. This confirms either a progradation of land or sea-level lowering (Loveson, V.J. & Rajamanickam, G.V., 2000, p.90).

Korkai was functioning as a big port as well as the capital city of Pandyas during the first century AD. The archaeological findings have revealed that this place is covered by recent deposits and is situated at least 5 km away from the present day coast. This archaeological evidence complements the data of sea-level variation in space and or time (Loveson, V.J. & Rajamanickam, G.V., 2000, p.90).

Rajamanickam and Loveson (1989) have reported for the first time in the east coast of India, the results of radio carbon dating of samples taken around the Rameswaram Island. This is the first evidence of its kind for the study of the sea level variation along the east coast of India. They ascertained the period of those samples as between 140 BP and 5,440 BP, which agrees well with the findings of Kattupotha and Fujiwara (1988 from Victor Rajamanickam, G.V., 1991, p.86), who identified two stages of high sea level during Holocene.

The uppermost terrace in Ariyankundu in the Rameshwaram island gives an age of 5440 ± 60 years. B.P., while the next terrace at about 10 cm below the previous sample level indicates an age of 3920 ± 160 years. B.P. The coastal terrace found in Rameshwaram island has shown that the coral growth has been initiated around that period in that island and continue to emerge or withdrawal of sea level might have caused the second terrace around the years of 3920 ± 160 years. B.P. in the island. (Rajamanickam, G.V. and Loveson, V.J., 1989, p.392).

Use of aerial photographs of 1972 to draw a Geomorphological Map, use of Topo-sheets of Survey of India to identify landmarks, extensive field work, bathymetry data using hydro graphic charts have also been brought in for interpretation (Loveson, V.J. & Rajamanickam, G.V., pp.80-88) of emergence of land.

Mr. Ahmed has described the Coromandel coast as the coast of submergence. However, if one takes a close observation there are many evidences not only historical but also the Geomorphological aspects betraying the possibilities of the emergence. For example, the ancient light house near Muttam is buried by the sand dunes and placed at present nearby two kilometres away from the shoreline. (Loveson, V.J. & Rajamanickam, G.V., 1988, pp.80-88).

The following features are shown in the Geomorphologic Map:

I. Ridges
II. Back waters
III. Palaeo-channels
IV. Spits and
V. Terraces

The recognition of the occurrences of terraces is led by Aerial Photographic interpretation. Kanyakumari, Manappad, Tiruchendur, Valinockam and Pamban have terraces (Loveson, V.J. & Rajamanickam, G.V., 1988, pp.80-88). These marine terraces depict the lowering of sea level along this coast and the height of sea-level stand during the past.

The existences of these coastal features have been attributed to the predominant influence of the on going progradation or the emergence of coast (Loveson, V.J. & Rajamanickam, G.V., 1988, pp.80-88). But another conclusion that this also represents sea ingress can also be drawn.

Sea level studies carried out on beach ridges around Vedaranyam and Mandapam show that there was transgression of the sea round 6000 years B.P. (4000 BCE). Coral terraces around Rameshwaram show transgression between 5000 years to 4000 years B.P. (3000 BC) (Anbarasu, K. et. al., 1998, p. pp. 1-2).

For Visakhapatnam, based on resemblance to the North American and Australian coasts, caused by the Holocene Marine transgression, the abrupt variation in the seabed topography may be ascribed to one such marine transgression during the Holocene period (Mohana Rao, K et.al., 1989, p.180). The behaviour of the textural pattern and associated bathymetric features suggest the presence of relict environments of dune and beach which leads to the conclusion that the beach ridges and channels observed up to 15m contour are remnants of the earlier beach submerged during the Holocene transgression (Mohana Rao, K et.al., 1989, p.180).

During the course of the study of the sea level variations along the coast of Southern Tamilnadu, a distinct spit formation has been traced in the surroundings of Periapatnam village. Admiralty charts from the year 1596 to 1986, the satellite imageries of 1979 and aerial photographs of 1972 were utilised. The ancient drainage pattern of Vaigai river has been surmised from the existing *Palaeo*-channels which have a perfect linearity with the present Vaigai river pattern. The flourishing ancient port of Periapatnam during 13th,14th Century on these *Palaeo*-channels must have been closed down due to the siltation caused by the change of the river courses and emergence of this coast. The fast rate of progradation at that spot has also been aided by the littoral drift (Loveson, V.J., & Rajamanickam, V.G., 1989, p.1).

The satellite imageries of Periapatnam as well as the aerial, photograph clearly depicts the recent Palaeo-coastline with one detached water tank at the northeastern part of the study area. The nature of the tank and depth variation inside the tank lead one to surmise that the cut-off water tank area must have been in the deeper part, probably sometimes a little past. From the bathymetry, it is inferred that the northwestern part of the above said tank must have been used by ancient people as the ports' entry channel. And the south-eastern part of the same channel probably the spit wall of the past must have been the natural breaker wall to give the necessary protection for the vessels. (Loveson, V.J. & Rajamanickam, G.V., 1989, p.4).

The port of Periapatnam has gone into the interior near the pond called Kappalur *Urani* Tank. Selddon wares, coins, metals etc have been recovered. The oral traditions of the fisher folks, farm labourers on the South Indian east coast to gather information of interest to Marine (underwater) archaeology. The recovery of an anchor from a French vessel dated 1864 was based on information from fisher folk (Rajamanickam, G.V., 1989).

The Department of Museums recently recovered an anchor about 200 years old from Kovalam near Chennai based on information from fisher folk. Near Poompuhar, the Curator brought a porcelain potsherd that is datable to the 17th Century AD from the net of a fisherman.

Conclusion

We can clearly see that a holistic approach with participatory information sharing and decision-making by the many agencies in the field will yield the best results. Rear Admiral Vasan of the Indian Navy, who is in charge of Naval Hydrography, in the course of his discussions after reading my book on Holistic Dating has expressed his readiness to survey and dive off the Tamilnadu coast for finding remnants of our ancient civilisation (*Lemuria*). He wanted agreed coordinates, since diving in a large area is like looking for a needle in a haystack. As seen above, the Global Positioning System (GPS) can solve the problem. He also agreed to take on board the ship archaeologists who could dive if willing or at least guide and interpret the sonar and other data gathered by the instruments on board the ship. During discussions with me, Dr. S. Padmanabhan reported that a *Mandapa* under the sea off Kanyakumari was reported by fishermen, since shoals of fish are there.

Dr.V.Rajamanickam has done a lot of work in this area. I had discussions with him also. He has given the map (see below) identifying the bathymetry of the area which is most promising for discovering the lost Tamil civilisation called Lemurian. The map gives a broad picture of a gentle slope of just 33 metres below Kanyakumari till Tuticorin on the sea coast. Historians also feel the area below Korkai would have been the route taken by the ancient Tamils from Kapatapuram to the present mainland. Further probe on sites like these, we must identify the most promising area. I would be most willing to communicate an agreed consensus of about 6 promising sites to the Government of India for marine archaeology. We must bear in mind the experience that the Gulf of Cambay was also dismissed as a figment of imagination till the recent finds. Therefore, in history, those who have daringly stood and ventured have alone come up with new theories. 'Nothing dared, Nothing gained' (Kannan, Dr. R., 2000, p.1). Let us discover our lost Tamil area under the sea popularly called 'Kumari Continent'.

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A 10^{TH} CENTURY BUDDHA STATUE

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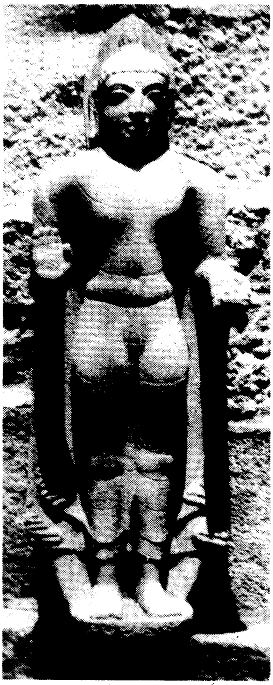
A Buddha statue of 10th Century A.D. is found out in the Ekambareswara Kamatchiamman temple at Sundarapandiapattinam in the border of Pudukkottai - Ramanathapuram districts on the east coast. This is the second such find in this area.

The standing Buddha statue was discovered by the author during his field survey as part of his study of the maritime trade history of the past in this tract. Ponparri (Ponpethi) was the only place identified by earlier scholars as an area connected with Buddhism in this area. The discovery of a 10th Century A.D. Buddha statue near the coast of Kottaipattinam (15Km from Sundara pandiyanpattinam) by the same author some months back and the present one are additions to the list.

Sundarapandianpattinam just at the border of Pudukkottai district in the coast, was a flourishing port, with the visit of multinationals, during the medieval period. The Ekambareswara temple where the Buddha statue is kept belongs to 12 - 13th Century A.D. according to the Pandya inscriptions here. This port was also in active maritime trade with Sri Lanka till the end of 10th Century A.D.



Buddha,
10th Century A.D.

The standing Buddha statue, 100 cm height, wears a close fitting robe extending from neck to legs with a *Sangati* (Long robe) at the back, the end of which is in elegant zig zags with swallow tail like appearence. The face is oval, nose, lip, chin, eye etc., are in a beautiful and perfect proportion. The ear lobe is elongated. The forehead has *urna,* a tilak like mark and a diamond shaped mark in the right palm, which are considered as *Mahapurushalakshana* in the Buddhist mythology. The right hand is in *abhaya mudra* the left hand is rised in the act of holding the cloth. The hair on the head is in studded knots, by tapering, a flame like, cranial protrubarance called *usnisa,* indicative of supreme knowlede or *gnana.*

We find a number of Buddha statues in sitting posture in Chola and the Pandya regions. Standing statues are rare. This is said to be third Buddha statue in standing posture in the region. The other two are from Cholanmaligai and Thiruvalamchuli, now in display at the Art Gallery, Thanjavur and Government Museum, Chennai respectively. This 10th Century A.D. standing Buddha statue is akin in style to the Buddha idols found at Nalanda, the great Buddhist centre.

By the side of the Siva temple at Sundarapandianpattinam, there is a ruined *mandapa.* A close scrutiny of the sites and structures show resemblance of a Buddhist monastry. Further research in the site will bring new facts. The Buddha statue in the Siva temple might have been taken from this site.

The find of this Buddha statue attest to the fact that Buddhism was well spread in this part of the coromandal coast. This tract being in the silk route, Chinese traders might have regularly visited the port towns here for their trade and the Buddha viharas were added attraction to them. It is well known fact that the spread of Buddhism and trade in the Silk Route were interlinked.

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TEMPLES OF SALUKKAI

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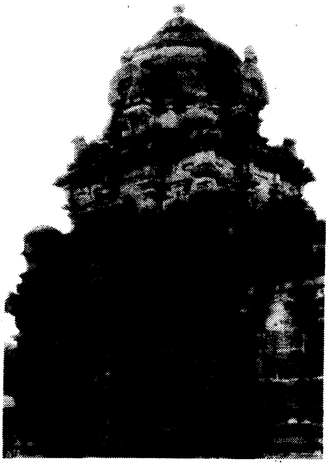
The Treasure - trove findings of Jaina metal images in the eighties of the twentieth Century A. D. in Salukkai village, inspired me to visit the area. Salukkai is an ancient village situated North- east of Vandavasi town in the Vandavasi taluk of the Tiruvannamalai district. This village is 5 kilometres away from Vandavasi. Salukkai was in the *Venkunra nadu* in *Venkunra kottam* included in the *Jayangondacholamandalam* during the Chola regime. Once under the rule of the Pandyas, Salukkai headed a *parru* division. In memory of Virarajendra Chola's victory against the Chalukyas, this residential area had been established and named as Salukkai alias Cholakeralapuram. Further he caused to construct temples like Cholakeralavinnagar for Vishnu and Manukulakesarisvara temple for Siva[1]. There was a Jain temple Virakeralapperumppalli[2].

Architecture

At present there are two temples bearing evidences for Chola architecture. "The state of civilization of a people is judged by its architecture," says Alexander Rea[3]. " Temples are obvious statements of wealth and power," states Andrew L. Cohen[4]. So temples play important role in preserving cultural heritage of the contemporary age.

Manukula Mahadeva Temple



Temple faces the east. *Vimana* of this temple is square having *bhadras* on three sides and two tiers. From *padmaupana* upto the *sikhara* the *vimana* was clearly constructed with granite. But *kalasa* is made of metal. On tall *upana jagati* is raised. *Vrita kumuda* with lotus petals attachments on both sides is placed on the *jagati. Kanta* continues over the *jagati.* Above the *kanta* a minor *kupota* runs along and over it *yalivari* is shown with a gap of *kanta vajana* is placed on the top. These features are disturbed by two *pajaras* on each side of the *bhadra.* Corners of *bhadras* and contoned parts have pilasters. *Gana* frieze is covered by the *kapota,* which has *kudus.* However these *kudus* are not well finished. *Panjaras* flanking the *bhadras* are raised on the *upana.* These *panjaras,* which are *vimana* models, were easily copied from the *Dadapuram* temple, which is near to this place[5]. *Adhisthanas* of the *panjaras* are not aligned with the *adhisthana* of the *vimana.* Above the *kapota* simple *yalivari* is demonstrated. The first tier is adorned with the *salas* and the *kutas.* The corners of the second tier have been placed with squatted stone *nandis* facing outward. *Mahanasis* on the cordinal directions have *Kirtimukhas* on the top. The *sikhara* is eight faceted of *Dravida* type. On the eastern side *antarala* and *ardhamandapa* continue. The *ardhamandapa* is supported with four faced pillars. On the northern side an entrance has been constructed. Further east a *mahamandapa* has entrance on the south and a window on the east. There is a *mandapa* with twelve pillars south of the *mahamandapa.*

Sugaranarayana Perumal Temple

This temple also two tiered *Dravida* order *vimana.* Even though this temple has *panjaras,* they are simple. Shrine faces the east. In front of the *vimana, ardhamandapa* and *muhamandapa* are attached. This temple during the Cholas was named as Cholakerala vinnagaram. Components of the *vimana* are simple.

Other two temples mentioned in the epigraph are not traceable. They are Virakeralapperumpalli and Uttaradevi.

Sculptural Wealth

In the Manukula Mahadeva Temple :

1. Ganesa

Seated Ganesa is placed in the south *niche* of the *ardhamandapa.* Slim trunk of Ganesa touches *modaka,* which is kept on the left hand. His backhands are not prominently chiselled.

2. Bikshatana

This figure Bikshatana stands on his wooden sandles. A cobra is tied around his hip. His head is shown with a wide *jatabhara.* On his right he feeds to an antelope whereas on his left a dwarf stands carrying a wide bowl on his head. A Bikshatana image of 11th Century A. D., which has been housed on the south niche of the Tirthapurisvara temple in Tiruvadatturai of Tittakudi taluk in the Cuddalore district, has an active movement, which is noticeable in its right bend knee and smiling face[6]. But idol of *Salukkai* has degradation in the workmanship.

3. Vishnu

Western niche contains a standing Vishnu having emblems in *kartari-mukha mudra.* The right hand stands in *abhaya* pose while the left rests on the hip.

4. Brahma

Brahma image stands in *samabanga* pose having four hands. His upper hands are holding respectively rosary and *kalasa* in *musti mudra.* Other two hands are as like Vishnu's lower hands.

5. Durga

Durga figure stands in upright pose holding in her upper hands *chakra* and conch in *kartari mudra* pose. She is devoid of any animal such as lion or deer.

6. Chandikesvara

Chandikesvara has been enshrined in a small temple. This figure has been carved in the seated pose holding an axe in his right hand and the left rests on his left thigh. *Jatas,* which adorn around the head spread widely on both sides.

7. Bhairava

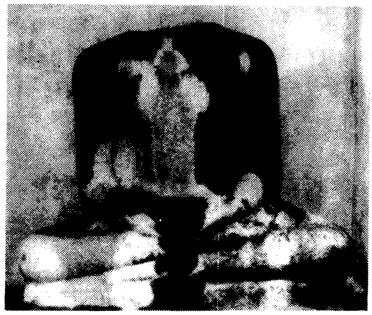
Bhariraava sulpture stands on a round pedestal in *samabanga* pose. His four hands carry weapons in *musti* pose. Both Chandikesvara and Bhairava have clearly carved in the same type of granite variety.

These images are assignable to the 11th Century A. D.

8. Durga

Durga sculpture stands alone northeast of the Siva temple in an open area. Durga idol has eight hands and stands on the head of a buffalo with her right leg, but the left leg has been planted on the lion. One devotee on her right cuts his head to bestow to Durga. One devotee kneels down on her left side. On stylistic grounds this image can be assignable to the late Pallava period[7].

In Sugar Narayana Perumal Temple



Vishnu and his consorts are housed in the sanctum. North of *mahamandapa* on the open a Vishnu stone figure stands. They are in the late Chola idiom. Further, there is a Durga stone sculpture in standing posture with four hands having weapons in *kartari mudra.* This might have been brought from out side the shrine and kept inside the *prakara* of this temple. An epigraph[8] of Emberuman temple informs us that once the Jain temple was under worship. A Jain Tirthankara is now kept in a small shrine on the southwest direction of this village. This Jina is in *Ardhapadmasana* pose with palms of his hands placed on his lap. Vandals had made it headless. This image also belongs to 11th Century A. D.

Social Life Shown Through Inscriptions

Fourteen inscriptions have been copied from the temples of Salukkai. They throw light on social life of this place during the Chola and the Vijayanagara periods. Repairs had been undertaken with the help of donations from village. Remission of tax is told. Festivals, processions of god on Sundays are mentioned. A dancing girl purchased two *velis* of land for the temple. Out of that, the merchant guild set up a Palliyarai Nachiyar. Pondi-Muratpuli of *Venkunrakottam* consecrated the images in the following temples of Siva, Vishnu, Jain and Devi and assigned to the villages of Erumbur, Kurumbur, Viraperumbakkam and Iluppai. When weavers of Salukkai requested the king in response the king ordered that various minor taxes had to be consolidated into a lump sum tax on each loom with provision for remision where looms were not working so as to induce the weavers to recolonise the town. At two different times two different persons built a *mandapa* and plights of steps[9].

Footnotes:

1. இல. தியாகராசன், காமராசவல்லி பதிப்பகம்.
2. 474/1920, ARE.

3. Alexander Rea, Pallava Architecture, Asian Educational Services, Madras,1995, P2.
4. Andrew L. Cohen. Manohar, The Temple Architecture and Sculpture of the Nolambas; New Delhi, 1998, P97.
5. Gandhi, M. Saivite Temples of the Chola Period in S. A. District in Tamilnadu, Report submitted to the Nehru Trust, New Delhi,1994.
6. Ibid.
7. ம. காந்தி, ஆவணம் எண். 13, அரியலூர், 1991.
8. 474/1920 of ARE.
9. 465/1920 to 477/1920 of ARE.

RESTORATION OF A PART OF THE DANISH FORT AT TRANQUEBAR

[DANISH GOVERNOR'S ORIGINAL RESIDENCE]

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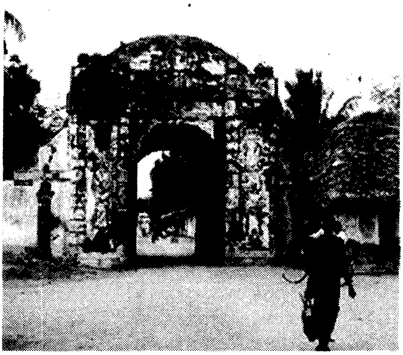
Curator, Government Museum, Nagapattinam
and
N. SUNDARARAJAN,
Curator, Government Museum, Cuddalore

This paper documents the restoration and conservation of southern portion of the Danish Fort (Dansborg) at Tranquebar in Nagapattinam District, Tamilnadu. This fort was constructed in 1620 AD and was badly in need of conservation. The restoration was done according to archaeological principles. It involved a Participatory Approach involving the local people, a group of Danes called the Friends of Tranquebar Society, State and Central Government agencies and even private companies. This was the first such large scale work undertaken under the auspices of the State Department of Archaeology & Museums in its history. The restoration was a success judged by the feedback received from the local people as well as the national and international attention it received.

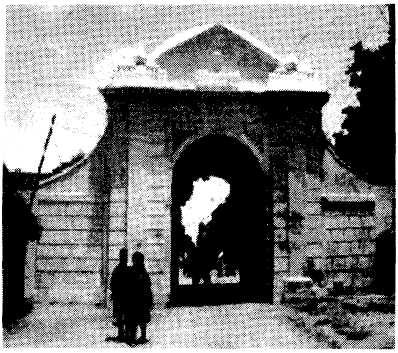
Introduction

Tranquebar is 35 Kilometres north of Nagappattinam abutting the Bay of Bengal. The Danes landed at this place in 1620 AD. It was already a pre-existing village, when the Danes landed. This is borne out by the temple on the seashore , which is crumbling now due to the sea ingress. Maravarama Sundarapandian, a later Pandya king, constructed this temple called the Masilamani Natha temple in 1305 AD. The Danes constructed fortifications on the coast at Tranquebar. This was the only busy trade centre on the Coromandal coast for the Danes. This fort was a busy trade centre till 1845 AD when the Danes handed over the fort to the English. It was used as a Public Works Department Travellers Bungalow for government servants and colonials till 1977 AD. This fort was declared as a protected monument by the Department of Archaeology, Government of Tamilnadu in 1977 AD. This paper narrates how the work of restoration and conservation was done.

Monuments in Tranquebar



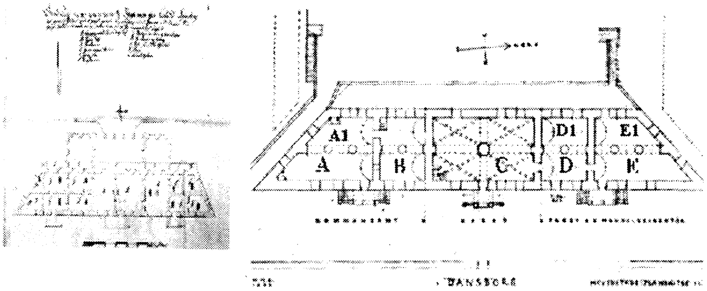
Land Gate before
Conservation



Land Gate after
Conservation/Restoration

The Danes constructed a big wall all around the settlement of Tranquebar, which they modelled after small European towns of the 17th Century AD. The Land Gate with wooden doors was the way leading to Kings Street was constructed during 1792 AD. King's Street is the main street in this small settlement. The Dansborg, the Danish fort built by Ove Gedde in 1620 AD.

Lieutenant Mühldorf's proposal from 1780 to change the Fort Dansborg.



The Plan for Fort Dansborg.
Outer length of the building (towards the sea) is about 60 m.
Outer width of the building (towards the drill ground) is about 45 m.
Outer width of the building is about 11 m.

A, A1 and B: The original governors residence (until 1784). These rooms are being restored.

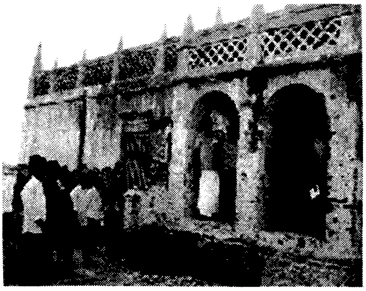
A1:	The kitchen in the governors residence with the open fire place and the funnel.
C:	The church room, now the museum.
D and D1:	The original rectory . (D is now the entrance to the museum and D1 is store room).
E and E1:	The original residence to a commercial director. (E is now office to the museum and E1 is store room)

Damages in the Monuments

The Land Gate was in very bad condition in 2001 AD. The plaster of the gateway had peeled off. This place surrounding the gateway was encroached by local people and their huts hid many parts of it. Most of these encroachments were removed by the revenue authorities later. The Fort was also in urgent need of conservation with the brick core being exposed and several cracks in the roof.

Dr. R. Kannan, Ph.D., I.A.S., Commissioner of Museums, Inspects the De-plastered Roof of the Fort.

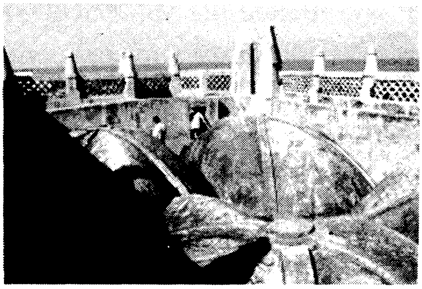
Prerestoration Site Inspection with Use of Participatory Approach



Dr. R. Kannan, Ph.D., I.A.S., Commissioner of Museums, Inspects the De-plastering of the Wall.

Dr. R. Kannan, Ph.D., I.A.S., Commissioner of Museums, Thiru K.T. Narasimhan, Superintending Archaeologist, Archaeological Survey of India, Southern Circle inspected this place on 17th July 2001, soon after Dr.Kannan took charge of Archaeology. The District Collector, Thiru Sudeep Jain, I.A.S. was present for some time. Dr.Kannan used the Participatory Approach of learning from the expert as well as those who had Indigenous Technical Knowledge and involving everyone in the task.

The fort was a complicated structure and they had to spend four to five hours in this fort in order to understand the monument. It was



Camel Hump Shaped Domes

found that there was immediate need for conserving the monument. The fort is in North-South orientation with doors at the East for ingress and a veranda on the West. Thiru Narasimhan found that there was a unique architectural feature in the monument. The central portion of the fort had four camel hump shaped domes on the roof with tie rods functioning as stays. The entire load of the domes was transferred on to a central pillar in the hall. Tie-rods have been used, as brick pinning alone would not serve the purpose since the domes are rectangular in shape and of very large size. The northern and southern portion shad barrel vaulted roofs. These had cracked in the central portion of the vaulted portion. The crack was longitudinal along the entire roof. Plastering on the roof and the walls had peeled off. This exposed the inner core of bricks to nature. The wood frames of the windows and doors had rotted due to exposure to 100% humidity since the fort is abutting the sea. Monsoon rainwater sprays into the interior, since no sunshades had been provided in the original construction. Due to leakage in the roof and also due to a hole in the load-bearing wall on the western side, water poured into the core of the walls. This was the condition of the fort during Commissioner's inspection. Thiru K.T.Narasimhan gave a note of inspection suggesting the immediate repairs to be undertaken and the lines on which repair is to be carried out.

Conservation of Artefacts in the Site Museum

In October 2001 AD, the Archaeological Chemist Thiru. M.S. Ashok Deen accompanied Dr.Kannan. They shifted some artefacts in dire need of restoration to Chennai as listed below:

1. Portrait of Raja Ragunatha Naick
2. Tranquebar Site Map
3. Potteries of Danish period
4. Portrait of the Danish King, Christian IV.

These were conserved and returned to the museum for display with good lighting as per museological principles. The Danes also gave some artefacts, photographs and laminated maps etc for display as a donation to the museum.

Restoration of the Monument - Persons Involved

The work of restoration and conservation of the Land Gate was started in February 2002 and was over by April 2002. The Archaeological Survey of India did this. This was the work that gave confidence in the abilities of Indian workmen to the Danes.

The Collector of Nagapattinam recommended that a group of Danish people called Friends of Tranquebar who wanted to restore Tranquebar fort might be allowed to do so. Since the Collector had recommended, they were allowed to restore the southern portion of the fort (Old Governor's residence). Restoration work started in April 2002. It was executed under the supervision of the State Department of Archaeology, Government of Tamilnadu.

This work was undertaken by Thiru Chella Pillai, Retired Archaeological Engineer, Archaeological Survey of India, Chennai Circle with technical help from Thiru Mathivanan and Thiru Aadsarathy, Conservation Assistants, Archaeological Survey of India, Chennai Circle. Thiru Krishnamurthi, Thiru Swaminathan, Thiru Narayanan, Engineers, Thiru Subramanian, Archaeologist, State Department of Archaeology also were involved under the overall guidance of Thiru K.T. Narasimhan and Dr. R. Kannan, Ph.D., I.A.S. The Commissioner made nine visits in the period of sixty days in order to supervise the work. He also designed the interior and exterior illumination.

Work of Conservation and Restoration

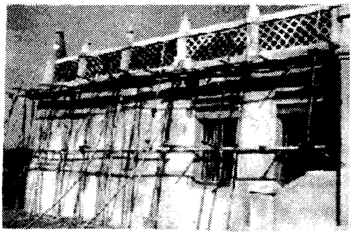
The longitudinal crack along the centre of the barrel vaulted roof was stitched with copper strips and by pouring lead for anchoring the strips into the masonry. Lead and copper are not corroded by saline air or water.

De-plastered Walls

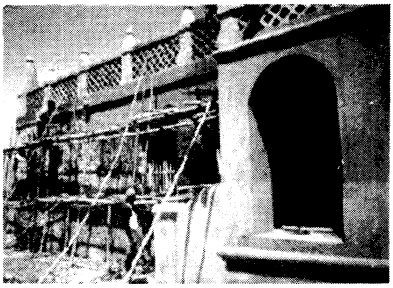
The walls were de-plastered and washed several times. They were allowed to dry between washes to remove salinity.

The wall was replastered with combination mortar with the ratio of 1:1:5 (cement, lime and sand). This was the first layer of the plastering.

The sand was sieved with 12 mesh sieve and ground with the help of an electrical wet grinder. Lime was brought from Pollachi and it was mixed with sand and sand to pickle. While using combination mortar, juice of gallnut and jaggery in 12 kilograms per cubic metre in equal proportion was used. This was pickled for 20 days. The second layer of plaster was in the combination of lime and sand in 1:3 ratio. The juice of agave leaf was used in good measure to combat salinity. Gallnut and jaggery was used as stated above. This was applied with the help of a small spade. The sand was pulverised with hand mortar. The third and final layer was made with in the combination of 1:1: 3 (white of egg 1, red oxide powder 1, synthetic iron oxide powder 3). This coating was applied with a brush and a square polished wooden board. It will give fine finishing. This will give the yellowish colour that characterised monuments of the 17th Century AD. The egg coating is non-sticky in nature. Therefore, the wall will not need any white washes in future. This coating was also given to the roof even on the top side. This gave the roof a shiny golden hue.



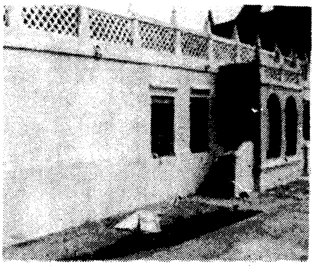
Re- plastering Work
on Progress.



Re- plastering work on Progress.

The chimneys were finished so that no leakage of water through them could occur. All new structures like a water tank that was added during the period when it used by the P.W.D. as a Guest House were removed. The removal of the later additions restored the fort to its 18th Century condition. The fort had already been once altered and renovated in the 18th Century after its construction in the 17th Century AD.

The windows and doors were renewed with Burma teakwood. The old rusted iron rods in the windows and in the ceiling to hang fans from were removed. Matt finish stainless steel rods were put in the windows. The wooden doors and windows were sprayed with polyurethane melamine with a compressor so that it will last long in the face of prevent 100% humidity and salinity from the sea as well as monsoon spray.



A Portion of the
Fort After Completion

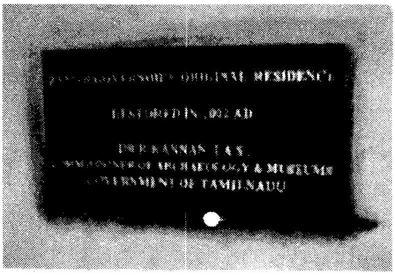
Lighting

Pipes embedded in the walls for running electrical wires were removed and the wiring pipes were concealed beneath the floor except in one instance when there was no other alternative. Dr. R. Kannan designed the interior and exterior lighting. M/s. Bajaj Electricals executed the work with fire retardant cables. BGNF14 model castle lights with Metal Halide Lamps were used for exterior lighting. This lighting has given uniform light green coloured light making the façade look beautiful in the night.

The Fort Under Illumination.

Inauguration

Dr.R.Kannan and Thiru K.T. Narasimhan, Superintending Archaeologist, Archaeological Survey of India, Chennai at the Event of Inauguration.



Stone Tablet Records the Restoration

The completion of the work of renovation was celebrated on July 14, 2002 AD. The Collector of Nagapattinam and the Danish friends Karin Knudsen, Viggo Knudsen, Poul Petersen, Ruth Klit Poulsen, Ulf Groenlund, Betina Christensen, Bent Christensen, Louis Kjaard took a walk along King Street. Dr.R.Kannan.and Thiru K.T. Narasimhan joined later. The B.B.C. Correspondent Charles Haviland covered it On-Line and on World Service Radio.

Mr. Chella Pillai, Conservation Engineer, receives Momento from Dr.R. Kannan, I.A.S.. Danish Friend, Mr. Poul Petersen (Left) Mr. Sudeep Jain, I.A.S., Dist. Collector, Nagapattinam (Right) and Mr. K. Lakshminarayan, Asst. Director of Museums Look on.

It has been covered on Star TV as well. The local people were present in full strength. They gave a cultural programme. All those present marvelled at the wonderful restoration. They paid rich compliments to the skill of the Indian workmen and archaeologists. The southern portion (Old Governor's Residence) has been restored.

Further Conservation Work Required

The northern and central portions await conservation. The archaeological prescription has been given Dr.Kannan. This has to be translated into reality just as has been done with the southern portion.

The rampart wall had caved in for a distance of about 100 metres. An excavation was conducted by State Department of Archaeology to ascertain the number of offsets that formed the foundation of the rampart wall. Excavation took place till virgin soil. Dr.Kannan suggested the lines for repair as follows on 8-10-2002.

"It may be necessary to go down up to the level of the last two offsets. It may not be necessary to go down to virgin soil as the portion above it is well stabilised for more than two hundred years. The gate of the castle may be made with teak wood reapers strung together on a teak wood frame on the inner side. This will give the same look and construction as a 17th Century AD European castle, which is what it looks like in old pictures and drawings. The weathering course of the arch above the entrance has too many layers resulting in unnecessary head load. The superfluous layers may be removed and water tightening may be done. The removal may be done by a power tool (chipper) to ensure minimum vibration. There is dampness in the vaulted basement portion of the main building of the fort. It is likely that there will be savings due to using the excavated old bricks and the bricks bought and stocked by the State Department of Archaeology a few years ago. These may be utilised for digging a trial trench in the basement (vault) of the main fort structure. This trial trench should be dug under archaeological supervision to avoid the possibility of damage to the foundation. This will help to find out the ancient drainage and foundation details of the main structure on the western side. The trial trench may be dug at the central portion of the wall sides and not near the pillars to avoid any destabilisation of the ancient structure".

Conclusion

This is the first conservation work of a historical monument done directly under the auspices of the State Department of Archaeology &

Museums in its history. This work involved coordination with several agencies of the State and Central Governments and private persons. It was the excitement of participation that enabled the work to be completed with in a very short period of three months. The persons who were involved right from the Commissioner worked from early morning till late into the night without caring for personal comforts or even adequate food. The hardships were shared by everyone equally. This fostered team spirit and true Participatory Approach. The work was appreciated by the local people, the State and Central Governments and even by Her Excellency, the Queen of Denmark, Queen Margerethe II. It has become a great tourist attraction on the East Coast Road. At the end, every one felt very happy. "Labour Omnia Vincit" – Labour always wins – It is now time to take the good work forward for full conservation and restoration of the fort to restore it to its old glory.

(We acknowledge with gratitude the help of Dr.R.Kannan, Ph.D., I.A.S., Commissioner of Agriculture & Museums, who edited this article at our request)

RAJPUT PAINTING

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Curator,
Contemporary Art Section,
Government Museum,
Chennai - 600 008.

Introduction

The National Art Gallery of the Government Museum, Chennai was declared open by the then Hon'ble Prime Minister, Pandit Jawaharlal Nehru, when the Museum celebrated its Centenary in November 1951. The collection of this gallery includes paintings from various Schools of Art such as Rajput, Mughal, Thanjavur, Kangra, Deccani, British and Raja Ravi Varma. Now it has been closed for renovation. After renovation these paintings will be redisplayed and the gallery will be opened for the Public. It has about thirty Rajput paintings in its collection.

Rajput paintings in our collection are tempera on paper. The sizes of the paintings varies viz. 21 x 13 cms, 26 x 18 cms, 28 x 16 cms, 25 x 19 cms, etc. These paintings are pasted on mount board and framed. There is no urgent need of conservation as the quality of the paintings is good.

Among these paintings, ten paintings were presented by Sri. V.T. Krishnamachari, formerly Deputy Chairman, Planning Commission in 1963. Twelve paintings were transferred from the School of Arts and Crafts, Chennai in 1943, Four paintings were got in exchange from the Museum and Picture Gallery, Baroda in 1952. Four paintings were purchased in 1951.

Twenty Rajput paintings had been displayed in the National Art Gallery along with other paintings. The other Rajput paintings are kept as reserve collection. A visual storage of aluminium sliding screens is used for storing the paintings by suspending them in the screens.

Description about the Land of Origin

Because of its unique geographical, historical and cultural background, Rajasthan has earned much fame. On one hand, there are the high peaks of the Aravalli Hills, valleys with green vegetation and the beauty of nature, while on the other hand are large expanses of desert. In the annals of Indian History, this territory had ever belonged to brave men and dedicated women. Rajasthan is undoubtedly a glorious land of artists.

Nomenclature

With regard to the nomenclature of the Rajasthani painting, scholars hold varied opinion. Some call it Rajput painting and others Rajasthani painting. Ananda Coomaraswamy was the first scholar who scientifically classified Rajasthani painting in his book titled Rajput painting in 1916.

This great school of painting flourished in Rajasthan (Bikaner, Jodhpur, Gwalior, Malwa etc.,) and in the several hill States of Punjab (known popularly as the Pahari style). Rajput painting, though a continuation of the ancient Indian tradition, was markedly influenced in its technique by the Mughal painting with which it was contemporaneous. In its turn, it influenced Mughal painting too-which in its origin and early manifestation was Persian-and caused it to acquire its unmistakable Indian character.

Schools of Rajput Paintings

Amber/Jaipur

Jaipur painting is characterized by a Mughal style , though often very static, the frequent use of gold leaf in filigree to denote intricate textile pattern. Western influence, derived from engravings, revealed by the incorporation of perspective and landscape elements into local idioms.

Bikaner

Paintings from Bikaner differ distinctly from the norm of traditional Rajasthani paintings. While a hallmark of Rajasthani work is the use of bold and vibrant colors, in paintings from Bikaner figures appear to float in landscape or, sometimes, stark desert settings defined by coal pastel colors.

Bundi and Kota

Throughout Bundi's history, paintings featuring romantic subjects and *Ragamalas* were rendered with an element of delicacy and poetic lyricism in the depiction of both figures and landscapes.

Marwar/Jodhpur

Like the paintings of Bikaner, those of the desert kingdom of Marwar in western Rajasthan (whose court eventually came to be located at Jodhpur, where it remains today) reflect an eccentricity in style. The

Museum's Jodhpur holdings provide a range of portraits that are good representation of this style. The portrait of Maharaja Bakhat Singh is an example of static official portraiture in the mid-eighteenth Century.

Mewar/Udaipur/Nathadwara

Mewar paintings came into its own during the reign of Maharaja Jagat Singh I (1628-52) with innovative manuscripts on the Krishna theme, many attributed to individual artists.

Malwa School

In 1454 AD, Malwa became the dominant power in the region. During the 15th Century A.D. contact with Persia was established and painters, calligraphers and manuscripts arrived to Indian court.

The colours used are red, green, blue, pink and yellow. The lavish use of gold is noticed.

Basohli Paintings

The Basohli style arose as a result of the intercourse of the folk art of the hills and the Mughal technique. The genuine Basohli primitives may safely be ascribed to the period 1661-1673 AD.

The pigments used are the same bright reds, yellows and blues of Malwa paintings, highlighting the vital quality of the work.

Division of Rajput Painting

Rajput painting may be broadly divided into two groups, the Rajasthani and the Pahari, with possibly an Eastern extension to include the 17th Century book-covers. The term Rajput is here practically equivalent to the 'Indo-Aryan' of ethnologists, which designation covers the Rajputs, Khattris and Jats of Rajputana, the Punjab and the Western Himalayas, i.e. all the old Hindu elements in North Western India, east of the Indus. The term Rajasthani has the same geographical connotation, as when used linguistically. But, Pahari is used in the local Panjabi sense, to mean belonging to the hills, from Jammu to Almora, which corresponds to Panjabi in part, and to the western Pahari, of the linguistic survey.

Pahari

Traces of Fresco paintings found in the medieval palaces of Jaypore, Bikanar, Jodhpur and Udaipur, belonging to the Rajput kings.

They are mainly decorative and betray Chinese and Persian influences. Jaipur became the centre of Rajput art . The Rajasthani style of Rajput painting is known as Jaypore Kalm and this 'Kalm' has a special character of its own. The powerful offshoot of the Rajput School is found in the group of small States in the Punjab Himalayas where the famous 'Kangra-Kalm' established itself. It is also known as Pahari painting. The date from the middle of the 17th Century and reached their zenith in the 18th Century A.D.

Theme

While the Mughal paintings were aristocratic individualistic, strong in their character of portraiture being fostered and appreciated only by royalty and noblemen at court, as they were reflections of their personal glory and vanity, the Rajput paintings were more in tune with a throbbing life around, simple, with a direct appeal to the peasant and the common folk, sublime in theme, universal in appeal, deeply religious and mystic, true interpreters of phases of nature in her moods in spring and in rain and emotions in man, bird and beast with a universal love for both the animate and the inanimate, the deer, the dove, the peacock, the monkey, cows and calves, trees and creepers, lovely brooks, shady bowers, moisture-laiden clouds, showering rain-drops with circling cranes, the melodies personified attracting even the beasts and reptiles to listen to the songs, or the lovers in separation or in union in short, themes whose appeal goes direct to the heart of peasant and nobleman alike.

Ragamalas

The *Ragamalas* (Musical modes) and *Nayikas* (types of heroines) are favourite themes in the several sets of paintings, which have come to light. The *Ragamala* pictures are pictorial representations of the musical modes. Every *raga* and *ragini* (ragini is a minor musical mode and often called the "wife" of a raga) are deified as deities. The iconography and the sentiment or mood associated with each *raga* and *ragini* are embodied in the form of *dhyana slokas* (invocatory verses), which are composed either in Sanskrit or in Hindi. The pictorial presentations are mostly illustrations of these verses.

Todi Ragini

For example, *Todi ragini* is pictured as a lady separated from her lover, who has betaken herself to the woods where she pours out her sad feeling of loneliness to the accompaniment of the strains of the *vina* on which she delicately plays. Attracted by her music woodland deer surrounds her. Holding the *vina* in one hand, *Todi Ragini* is represented as feeding the deer with tender shoots of grass.

Ragini Dhanasri

A lady engaged in the act of drawing the likeness of her absent lord and thus seeking relief from the pain of separation from him is *Ragini Dhanasri.* In the *Ragamala* pictures was achieved a subtle blending of music painting and poetry, which is a rare artistic synthesis.

Period and Place

Rajput painting reached its most distinguished phase in the Punjab hills where various local schools flourished during the seventeenth, eighteenth and nineteenth centuries, particularly at such well-known centres as Kangra, Basholi, Punch and Jammu.

The output of the various Rajput Schools of painting is truly enormous, and notable for their stylistic variations. The significant achievements of this great branch of Indian Painting have never been so well and truly assessed as in the noble words of Dr.Ananda Coomaraswamy, "What Chinese art achieved for landscape is here accomplished for human love."

Materials Used

The various materials used on these paintings are paper, mineral, and vegetable colours and fine brushes.

Conclusion

Whatever be the theme in expression, Rajput painting is always lyrical and passionate. It reflected faithfully the Vaishnava mystic belief that what you cannot find in familiar things you cannot discover anywhere else and that if beauty is not apparent in these it cannot be discovered in strange and distant objects. Again, as Dr. Ananda Coomaraswamy points out, Rajput art "create a magic world where all men are heroic, all women are beautiful and passionate and shy, beasts both wild and tame are the friends of man, and trees and flowers are conscious of the footsteps of the bridegroom as he passes by. This magic world is not unreal or fanciful, but a world of imagination and eternity, visible to all men who do not refuse to see with the transfiguring eye of love."

Most of the *Ragini* paintings bear exquisite paintings and a verse depicting the particular mode written either on the top or on the bottom of the paintings. The verses are usually in Gujarati or Rajasthani script. The figure of the human beings and those of animals and birds are also idealistic.

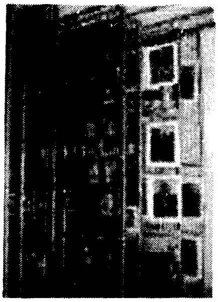
The chief quality of Rajasthani paintings is their idealistic representation of the emotional aspects of Hindu life. The themes are varied and sentiments of love and devotion mingled with an exuberant joy of life, the common subject matter being the Krishna legends.

Description of Some of the Paintings

1. The painting "Musical mode Ragini Kamphanadu" shows a king in his palace. Two soldiers are standing on the right side of the king. A soldier is riding an elephant with *Angusam* in his hand. A script is written on the top of the painting.

2. The painting "Musical mode Ragini Gaudakali" shows a lady holding *Tambura* in her hand. There are animals like monkeys, peacocks and deer roaming in the garden. A script is written on the top of the painting.

   These paintings were purchased in 1951 They are miniatures in size. Yellow red, green, white, block colours are mostly used. It has good colour combination.



3. This is a view of the sliding screen with paintings. Such a system economises the floor space and is efficient for examination and retrieval purposes.

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SAND-BLASTING VERSUS CHEMICAL CLEANING OF STONE STRUCTURES

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Introduction

Monuments testify man's efforts to the present day society through visible media. This has resulted slowly in the construction / excavation of places of worship such as temples, churches, mosques, *dargahs*, *gurudwaras* etc., as per the provenance of the particular religion. India has many a monuments, which are either rock cut, stone cladded of, built architectures. It is our duty to preserve these monuments to posterity with the available technology of this time. With the good intention of removing the years of accretions sand-blasting was done in temples of Tamil Nadu. But it is deleterious to the stone of any sort. Now Sand-blasting is discarded and the chemical ceaning, the safest method of removing the accretions from stone structures is added. This paper deals with various types of stones, deteriorations on stones, remedial measures, and the conservation procedures. It tells how chemical cleaning is safer than sand blasting.

Materials Used in Monuments

Among the various natural materials available to the ancient man, he chose stone as the very important material for construction. Starting with stone excavated temples, he constructed stone built temples and finally he used mainly brick masonry temples and buildings.

There are various types of rocks such as igneous, metamorphic, sedimentary etc. Igneous rocks like granite are those which were formed by the cooling of volcanic lava. Sedimentary rocks like sandstone and limestone were formed by gradual sedimentation of layers of sand and other inert materials brought by rivers / streams and deposited at the beds of lakes and ponds. In due course of time, these layers got petrified and stone was formed. Metamorphic rocks, for example marble and gneiss were formed by the metamorphosis of either igneous or sedimentary rocks into a new form on account of pressure or heat or some other geological change. Granites are the basic materials for carving out sculptures in India especially in south India. They have outstanding hardness and strength. They are mixtures of quartz, potash feldspar and mica, formed under intense pressure and high temperature. They have also been chosen as building materials. Most of the cave temples are cut out of these rocks. Sandstone was also chosen to cut and shape sculptures. Mathura region has this type of stone sculptures. It is composed of quartz grains in a matrix of either more quartz, when it is strong, or limestone, when it quartz is less, because limestone (calcium carbonate) is readily attacked by acidic solutions i.e. even by rain water (pH is 5-6). Marble was also used in sculpturing as well as facing monuments like Taj Mahal. Marble is non-siliceous and is nothing but compressed limestone. It takes good polish, as it is less porous. The coloured lines are the impurities present. Dolomite was also chosen as a stone to carve sculptures and as building materials. It is a double carbonate of calcium and magnesium and its properties are similar to marble and limestone. Laterite is rocks, which are very porous and easily affected by moisture and percolation of water.

Deteriorating Agencies

There are two ways of deteriorating the monuments. They are the natural factors and the manmade factors.

Natural Factors

1. Growth of vegetation
2. Sub-soil water
3. Seepage
4. Salt action
5. Rain
6. Wind, heat etc
7. Earthquake

Manmade Factors

There are many man-made problems in the deterioration of monuments. They are:

1. Vandalism
2. Unawareness
3. Religious Fanatism
4. Blasting and Bombing
5. Tourism Development
6. Misusing the Monuments
7. Mismanagement

Decay Due to Natural Agencies

Weathering is a natural phenomenon by which all the stone monuments are deteriorating. They are physical weathering, chemical weathering and biological weathering. Due to the exposure of the monument to the natural agents like sun, wind, rain, saline atmosphere and other factors for many centuries continuously, the surface of stones of the buildings undergo deterioration resulting in erosion, pitting, finally the collapse of the buildings, if they are not conserved whenever required. Rain dissolves the gases like corbondioxide, nitrous and nitric oxides, sulphur dioxide and sulphur trioxide present in the atmosphere and becomes acidic and the chemical liquid thus formed naturally erodes chemically the surface of the stone monuments bringing out chemical weathering of the monument. Biological agents like fungi, bacteria, moss, lichen, grow over the rain exposed stone monuments and due to the acidity produced by these biological agents, the surface of the stone monuments is biologically deteriorating. The plants, which grow out of the seeds dropped by birds in the gaps of the stone joints slowly grow into trees and finally destroy the monuments through their strong and deeply penetrated roots. The birds droppings, containing very harmful organic materials, which get collected on the monuments over a long period, damage the surface. Besides these the location of the monuments, water table in the locality, seepage and leakage affect the stone monuments very much.

Decay Due to Manmade Action

The man-made problems to the monuments are religious feuds, vandalism, encroachments, faulty restoration and repairs to the monuments, mismanagement of the monument, misuse etc. The man-made decays would have been averted, if proper planning to safeguard the monuments are done involving the public of the place. Vandalism has taken the lead in the deterioration of the monuments in our country. Graffiti, removing portions of the monument as a token of memory, scaling the monuments, not following the rules and regulations for safeguarding the monuments etc., will bring heavy demage to our monuments.

Conservation

Conservation is essentially an operation aimed at prolonging the life of a monument and results in preventing, for shorter or longer period, from its natural or accidental deterioration.

Remedial Measures

There are various kinds of remedial measures. They are:

1. Psychological Measures
2. Legal Measures
3. Physical Measures
4. Chemical Measures

Involving the public of the locality and the tourists who visit the monument and imbibing a mind set in them to preserve the monument are very important. There should be a pre-visit package about the monuments and the ways of the behaviour of the visitors to the monument may be done at the reception, with an exhibition or a video show or a wide screen show, educating the visitors. Any system will have a success, if the public is involved in the system. The public may be involved in the preservation of the monuments in the locality. Student population is a very good force to create an awareness among themselves as well as public and visitors.

Legal Measures

There are many Acts to protect the monuments protected by the Central government or the State governments. There are various clauses of protecting the monuments and the penalties in case there is any danger for the monument. But, not much action is being initiated. The penalties are also not severe. No construction within a distance of 100 metres from the monument is permitted on any account. Construction may be permitted by the Director General of Archaeology at a distance of 1001 metres to 300 metres. There should be a Monument / Tourism Protection Force under the control of the Archaeological Survey of India, which the Tourism Departments may make use of it. Like the Central Industrial Force is being used by all the user departments.

Physical Measures

When the monuments are affected by various agencies, it is necessary to adopt the remedial measures to control the defects. Fencing is a must for any monument. Vigilance on the site by the officials is very important.

Chemical Measures

1. Removal of biological growth (by the application of chemicals such as ammonia and a detergent)

2. Consolidation of weathered area in stone (normally done with hydroxy silanes, other polymers)
3. Removal of soluble salts (by poulticing-paper pulp treatment)
4. Application of fungicides (applying a dilute solution of zinc silico fluoride)
5. Application of preservatives like hydoxy silanes, poly vinyl acetate.

As our monuments are of very large inside mostly and are continuously exposed to the dangers of the atmosphere, any single action and a blanket measure as a solution is not possible; but the measures should be periodically regular. Even though the periodical remedies are quite expensive, it is worth doing because it is a labour of love for our worthwhile heritage and any neglect will lead to irreparable national as well as international loss of cultural and architectural heritage.

The Conservation Branch of the Archaeological Survey of India is taking many remedial measures to protect the monuments under its control. similarly the State departments of Archaeology are making effects to conserve the monuments under their control. There are many problems of taking care of them due to shortage of manpower, finance, co-operation, co-ordination, support from the tourists, local government etc.

Cleaning of Stone Structures

Stone structures normally have accretions such as smoke, oil, soot, calcareous deposits, paints etc. They should be removed very carefully. There are many physical and chemical methods available. They are,

1. Grout Blasting
2. Laser Cleaning and
3. Chemical Cleaning

Grout Blasting

Grout-blasting was a common technique adopted in the surface cleaning of objects, which are very badly corroded but had inner metal core etc. The grout blasting used fine powders like walnut power, calcium carbonate of various sizes. This was effective on small objects of metal as they carefully removed only the corrosion products. But, now a days sand blasting is used in cleaning the stone surface of the temples and sculptured stone pillars. This is very dangerous for the following reasons:

1. It removes the accretions along with the stone surfaces.
2. It creates further tension on the stone surfaces creating cracks etc.
3. This does not remove the salt absorbed in the stones, but accelerates further salt absorption faster enabling further decay.
4. This cannot selectively remove the accretions if the surface has paintings underneath the oily accretions.
5. This aggravates the damages already occurred to the stone surfaces.

There fore sand blasting should be avoided by all means while cleaning the stone surfaces with accretions of any type.

2. Laser Cleaning

Laser cleaning was first used in art conservation during the 1970s. The results obtained were very impressive, but unfortunately further work was limited by the technology and the high cost of lasers. In recent years, interest in laser cleaning has been revived as lasers have become more reliable, portable and affordable. This has led to the successful research into the use of lasers for cleaning a wide range of artifacts, including objects made of stone, terra-cotta, bone, ivory, vellum and some metals. Lasers are normally named after the material used to produce the laser energy. In the case of art conservation, the most commonly used cleaning laser is the Nd:YAG laser. This laser produces pulses of infrared energy that are directed onto the surface to be cleaned, usually by means of either mirrors or optical fibres. The laser energy is absorbed by foreign material, which is then ejected from the surface. The laser pulses used are of very short duration, which ensures that the cleaning effect is localized to a precise region and does not damage surrounding areas. The precise and immediate nature of the technique gives the Conservator a degree of control over the cleaning process not previously possible, thereby allowing for the preservation of delicate surfaces and patinas. In many cases, such as the cleaning of limestone and marble sculpture, the process of laser cleaning stops as soon as the dirt layer has been removed. This 'self-limiting' action operates because the black dirt or pollution layer strongly absorbs the laser radiation while the surface beneath reflects the beam harmlessly away. Problems of overcleaning can therefore be avoided. The laser system is most effective when there is a distinct difference between the absorption properties of the accretion layer and the substrate layer. When this does not occur then great care must be taken during cleaning to avoid damage to the substrate. The laser effects only the surface of the object being treated and therefore is unlikely to give satisfactory results when attempting to remove material trapped within the matrix of the substrate, so for example, while the laser may be effective at removing salts from the surface of a stone object, it will leave untouched any salts within the object.

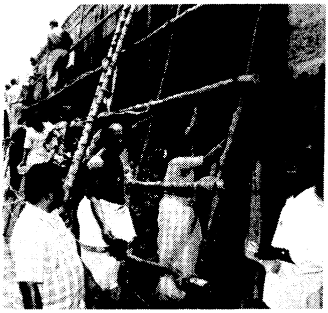
Chemical Cleaning of Stone Structures

Cleaning with the help of chemicals, which will not affect the surface of the stone elements of the structures, is called as chemical cleaning. Chemicals like ammonia, organic solvents like acetone, toluene, and benzene are commonly used for removing the oily accretions from the stone surfaces. This can be effected by both through mechanical instruments and also manually. The chosen area where accretions are found should be examined before the actual chemical cleaning is taken. One should look for the following:

1. Paintings underneath
2. Inscriptions
3. Sculptures
4. Damages, if any.

Cleaning of Oil, Moss and Lichen etc.

If paintings are underneath, the cleaning should be avoided with the chemicals like ammonia. Only a well trained Conservator should decide the course of action. The area to be cleaned should be washed with salt free water and washed to get rid off the loose accretions. Following that, a 10% detergent like Laboline, Extran, Labo clean may be applied on the stone surface and brushed with a coir brush or nylon brush. Then and there the cleaned surface is washed and brushed to get rid off the accretions



Cleaning of Moss and Lichen from a Temple Wall completely. After drying, the surface is treated similarly and washed well. A dilute solution of zinc silico fluoride is coated in order to avoid the growth of moss and lichens on the exposed surfaces. This should be repeated when the growth is noticed again.

Cleaning of Calcareous Deposits

Calcareous deposits are due to the white washing of the surface of stone walls, pillars, sculptures etc. This is a very laborious process. The area, which has a coating of lime wash, should be moistened with salt free water and mechanically scrtched carefully for the action of chemicals and pplied with a 5-10% solution of glacial acetic acid (LR Grade) and brushed well with a coir brush or nylon brush and washed well with water. This surface is also applied with a dilute solution of zinc silico fluoride in order to avoid the growth of moss and lichens afterwards.

Mechanical Cleaning

Manual operation may be difficult for a person. There fore the chemical cleaning may be done with the help of a mechanical device. The rubbing of the affected surface may be done with the chemical while brushing. Later the cleaned surface may be washed with a jet of water.

Conclusion

What ever may be the measures taken to preserve the monuments, regular inspection of the monuments is a must. Self-generating funds is necessary to safeguard them. If we are interested in the preservation of the monuments, there should be involvement among those involved in the service, public at large and the tourists who visit the monument.

Training couses have been planned by the Department of Museums for those officials, who are involved in the preservation of monuments.

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DEEP SEA LIFE

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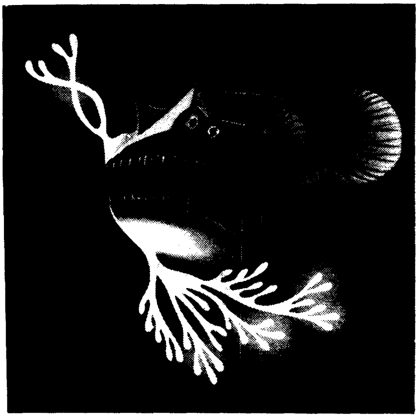
Deep sea forms a very interesting special biotope. Sun light penetrates up to 200 meters down into the sea, and the existence of life is more in this depth. There after, there exists minimum life and never ending darkness prevails. There is nothing to mark the flight of time, no days, for the day never dawns in the dismal depths, for it is beyond the embrace of the scorching sun's rays, no night, no well defined seasons but only darkness.

The deep sea system is divided into two main regions namely, an upper archibenthic and a lower abyssal benthic. The archibenthic extends from the sublittoral zone (200 meters) to about a depth of 800 to 1100 metres. The abyssal benthic zone is composed of the entire benthic zone below archibenthic. In fact, all the animal population below the littoral zone may be spoken of as the deep sea fauna.



Deep Sea Angler

Perhaps the most striking feature of the deep sea is its changelessness. It is the result of one sidedness. One sided biotopes with special conditions are generally subjected to an ecological principle known as "Theinemann's Principle". According to this principle the more one sided and more specialized, so to speak, the bioptope becomes, the more poor in it's species, but richer in individuals with astounding peculiarities.

In brief, immense pressure, unrelieved darkness, low temperatures, scarcity of food are some of the essential factors of the conditions existing in the deep sea.

Deep Sea Adaptations

1. Deep sea animals are dwarfish when compared with their relatives at the surface. Deep sea lamellibranches and gastropods are very small and they do not reach even the moderate size. Absence of food explains the dwarfish nature of deep sea animals.

2. The deep sea animals are frail and weak. This is mainly because of the absence of water movements or currents at these depths. Animals with weak and fragile skeleton are able to survive only because of the absence of water movements. They are generally thin and flabby in nature. The weak nature of the skeleton of the deep sea forms is due to the inability to synthesize calcium at lower temperatures that prevail in the depths. Hence animals belonging to groups with a strong calcareous skeleton or shell found elsewhere are represented by forms characterized by weak skeleton in the deep sea. Thus calcareous sponges are totally absent below 300 meters. The deep sea molluscs are known for their fragile shells.

3. Another remarkable feature is the presence of a riot of colours. Red colour seems to predominate over others. Besides; dark, violet, black and brown are quite common. Deep sea foraminiferans are known for their dark reddish and violet colouration. Deep sea starfishes, crustaceans, hydroid polyps are red in colour. Many copepods are dark violet.

4. Deep sea animals are predatory in their habits. Living plants are not available to deep sea animals as food. They depend upon the food dropping like gentle rains into these unfathomable depths from the surface. Hence, they prey upon each other. The rate of sinking of the food materials is very slow and before the food can reach the depths, animals present in the intermediate zones consume them. Hence the depths are left without enough food supply. This probably accounts for the poor population at the depths. Many fishes depend upon the bottom ooze so characteristic of ocean floors for their food and hence they have lost powers of mastication. However, many predaceous deep sea fishes are characterized by wide mouths and very strong dentition.

5. Bioluminescence is rather widespread among deep sea forms. The production of light in the deep sea animals is regarded as

an adaptation to the absence of light. Light production is not strictly confined to the deep sea forms for a number of pelagic as well as terrestrial forms are luminescent. Bioluminescence is common among the fishes, crustaceans and cephalopods. The light producing organs are present all over the body or may be localized in certain regions such as the head, the sides of the belly etc. Among the fishes nearly 44% of the deep sea species below 800 meters are known to produce light. Teeth and mouth may also be luminous. Bioluminescence is said to serve two purposes: a) it is supposed to help in the recognition of sexes b) since the luminescent organs are centered around the mouth region, they are said to attract their prey.

6. The eyes of some deep sea fishes are strangely enough very well developed into large size. Some fishes have telescopic eyes. As an adaptation to the dim light of the abyssal region, the retina of the deep sea fishes have specialized sensitive rods. The cones are entirely absent. The absence of eyes is also noticed in the deep sea fauna, especially in the crabs and pecten.
7. As a sort of compensation for the loss of sight, deep sea crustaceans and fishes have developed long feelers, which are meant for exploring the surroundings.

Deep Sea Fauna

With the exception of the air-breathing arthropods and the land vertebrates all the other phyla of the animals are represented in the deep sea. Among the protozoans radiolarians such as Acantharia are confined to the abyssal pelagic zone. The foraminiferans are abundant in the abyssal benthal region. Among coelenterates the stony corals seem to penerate greater depths. The sponges form an important element in the deep sea. It is entirely composed of siliceous sponges or hexactinellida. The glass sponges are either cylindrical, vase or urn like or funnel like in shape, which are fixed to the base by means of rooting spicules. Annelids are mainly littoral but deep sea forms are also found. Usually tunbicolous forms extend up to 4,000 fathoms. Among the arthropods, crustaceans are represented by the barnacles such as Verruca and Scapellum. Isopods and Amphipods are also found. The decapod crustaceans are represented by crabs, lobsters and shrimps. Among molluscs the scaphopods are numerous. Lamellibranchs and gastrpods are without characteristic abyssal genera. Brachiopods have been dredged from 2,900 fathoms. The echinoderms are the most abundant among the deep sea animals. The stalked crinoids are typically confined to the deep sea. The starfishes descend up to 2,000 fathoms. Sea 'ruchins have been found to inhabit a depth of 2,000 to 3,000 fathoms. Pogonophorans are confined to deep sea.

The teleost fishes include a number of representatives (eg. Idiacanthus, Gastrostomus). Bassugigas, about 7 cm. long, is the deepest known occurrence of teleost fish. It was dredged from a depth of 7,130 meters during the Galathea Deep-sea Expedition. The absence of light makes it difficult for the males of species to meet the females of the same species. As a consequence, the males of some species of fishes are permanently attached to the females.

Thus the deep sea forms an interesting environment, showing life can exist even in very remote areas of this Blue Planet.

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NATURAL DYES

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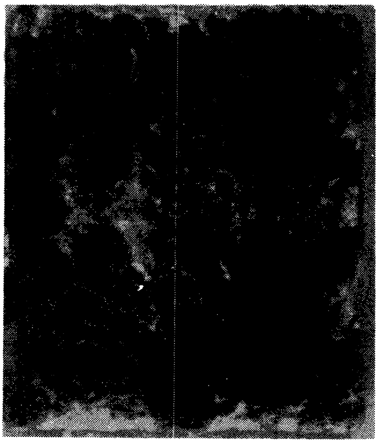
'Dyes' are the coloured compounds capable of being fixed to fabrics, which do not wash out with soap and water. Natural dyes and stains, obtained from the roots, leaves, bark, fruit or wood of plants have been used from ancient times. More than hundred dye-yielding plants have been used commercially and only a few have been able to compete with the artificial dyes.



Dye Block Showing
Floral Motif

In the historical view, early Egyptian pictures show red, yellow and green cloth. By 1500 B.C. stripped red, deep blue and yellow cloth became fashionable. As early as 2000 B.C., the dyeing of linen and leather was not only an individual craft but also a temple industry. In Hellenistic times, dyeing became a State monopoly. According to Pliny, "the ancient Egyptians were expert dyers and acquainted with the use of mordants, which seemed to be derived from Hindustan". The early history of the development of dyeing cannot be exactly traced as there seems to be no literature on the subject in existence. There are however certain facts of history and tradition which tend to show that the process of dyeing was not unknown to early Indians in the earlier part of the Brahmanical Age. The ancient Indians successfully practised the art and were able to produce coloured patterns upon cotton and woollen fabrics. Later the discovery of the first synthetic coal tar dye, Mauve, by Perkins in 1856 was an event of the outstanding scientific and industrial importance.

Dyes are obtained naturally and synthetically. The natural dyes are derived from vegetable, animal or mineral origin. In spite of extensive use of synthetic dyestuffs a few natural dyes are still used for dyeing textiles. The vegetable dye matters are derived from woods, stems, barks, fruits and flowers of a large variety of plants. A purple dye is extracted from some species of Lichens.

Dyes are chiefly employed as colouring agents, which are used in textile industry, leather industry, paints, varnish, printing and writing inks, paper, food and drugs, perfumes, cosmetics, photographic films and also used as stain in the field of bacteriological and historical work.

Vegetable dye stuffs are extracted by the process of fermentation, boiling and treatment with chemicals. Various shades may be obtained from a single dye by the use of different *mordants.* Mordants are agents which fix the dye with the fabric. Fabrics to be dyed are treated with salts of metals like aluminium, iron, chromium etc.

Botany Section of the Government Museum, Chennai has two galleries situated in the second floor of the Main building. They are the Systematic Botany Gallery and the Economic Botany Gallery. In the first gallery plants are arranged according to the taxonomic classification of plants. Displayed in the Economic Botany Gallery are the various economic products obtained from the various parts of the plant. Exhibited in the 'Dye' showcase more than twenty dyes are kept on display whose usage with the botanical name , family, popular name and Vernacular name are given below:

Indigofera tinctoria, Linn.
Family: Fabaceae
English: The Indigo Tamil: *Neelam*

It is a natural dye obtained from the leaves of the plant. The freshly cut plants are dried and the leaves are separated from the stem by beating. Indigo occurs as the glycoside of indoxyl (indican) in the leaves. Dye is extracted from the leaves either by the wet or the dry process. As a vegetable blue dye, it is unrivalled because of its great natural fastness, both to light and water; it is used for dyeing and painting.

Acacia arabica, Willd.
Family: Mimosaceae
English: The gum tree Tamil: *Karuveli/Karuvelam*

An erect shrub or tree, with straight spines, found throughout India. The pods and bark yield dark brown shades approaching to black with alum as the mordant. The dye ingredient used are the dried fruits and fresh leaves.

Acacia catechu, Willd.
Family: Mimosaceae
English: The Catechu Tamil: *Kaasukkatti*

A moderate-sized deciduous tree, with dark brown, much-cracked bark, and short-hooked spines in pairs. Common in most parts of India. By the action of lime or of alum, on the boiled broken heartwood, which gives a fairly good permanent bronze brown dye. Much used by the calico printers.

Adenanthera pavonina, Linn.
Family: Mimosaceae
English: The Coral wood/Red wood Tamil: *Anai-gundumani*

A large deciduous tree, met within Bengal and South India. The wood is powdered and used as a red dye which is used by religious Hindus for making marks on the forehead.

Eagle marmelos, Corr.
Family: Rutaceae
English: The Bale Tamil: *Vilvam*

A deciduous glabrous small tree with straight strong axillary spines. Found in the wild and also cultivated all over India. A yellow dye is obtained from the rind of the fruit; the unriped rind is also used along with myrobalans in calico-printing.

Artocarpus integrifolia, Linn.
Family: Anacardiaceae
English: the Jack fruit tree Tamil: *Japhaa*

A graceful shrub, with handsome white or pinkish flowers. Originally a native of America, now largely cultivated in India for the red or orange dye obtained from the pulp which surrounds the seed. It is altered by certain combinations into orange, deep orange or red which is largely used in dyeing silks and also used to colour cheese and other edible articles such as chocolates. The seeds are powdered with soda ash and is boiled for about 15 mts, cooled and filtered. The mordant used is lime water.

Casuarina equisetifolia, Forst.
Family: Casuarinaceae
English: The Beef wood Tamil: *Savukku*

A large evergreen tree, with leafless drooping branches which are deciduous and perform the functions of leaves. Found in the coastal regions , throughout India. The bark contains a small quantity of colouring matter and produce slight-reddish colour used in fabrics. Dye ingredient used are the green leaves and dried bark

Crocus sativus, Linn.
Family: Iridaceae
English: Saffron Tamil: *Kungumapu*

It is cultivated in Kashmir. The European supply of this plant comes from France, Spain, and Italy. A yellow dye is obtained from the orange coloured stigmas and the upper part of the style. Saffron was well known to the ancient Greeks and Romans. It also finds reference in Sanskrit literature. It is used for colouring butter, cheese, puddings, pastry and confectionery.

Curcuma longa, Roxb.
Family: Zingiberaceae
English: The Turmeric Tamil: *Manjal*

A perennial herb with alternate sessile leaves, usually with sympodial rhizome. Turmeric is extensively cultivated all over India. An orange red dye is prepared from the rhizomes. The colouring matter is known as 'Curcumin'. It is chiefly employed in dyeing wool, silk, cotton and in calico printing.

Hibiscus rosa-sinensis, Linn.
Family: Malvaceae
English: The shoe-flower Tamil: *Semparuthi*

An evergreen ornamental bush, a native of China, but found in most flower gardens in the plains of India. A red dye is obtained by an infusion of the flowers which is used in colouring paper. The petals are used to blacken shoes, hence the English name of the plant, and also to make a black dye for hair and eyebrows from petals.

Lawsonia inermis, Linn.
Family: Lythraceae
English: The Henna Tamil: *Maruthani*

It is a small, elegant and sweetly scented tree, which is cultivated commonly throughout India. A decoction of the leaves is occasionally used in dyeing cloth, the colour produced being a shade of yellow or reddish-brown. The 'Henna', is very much liked by the ladies who paint their fingers, nails and feet with paste prepared for this purpose by pounding the freshly plucked leaves.

Mallotus philippinensis, Muell.
Family: Euphorbiaceae
English: The Kamala tree Tamil: *Kapila*

A small evergreen tree, found throughout the tropical India. The dye is obtained from its fruits in the form of a red powder found inside the capsules. Kamala dye was formerly used in India for dyeing silk and wools for getting the bright orange colour. The colouring material is found in the red glandular pubescence covering the fruit.

Mangifera indica, Linn.
Family: Anacardiaceae
English: The Mango Tamil: *Mangai*

A large glabrous tree, found in the tropical India . The bark and leaves yield a yellow dye which is used to colour cotton, silk and wool. The pulp of the fruit also produces yellowish or grey shades for dyeing the silk or cotton cloth.

Michelia champaca,Linn.
Family: Magnoliaceae
English: The champak Tamil: *Shenbagam*

A large evergreen tree, with yellow coloured sweetly scented flowers, cultivated throughout India. The flowers when boiled yield a dye which is used as a base for other colours.

Nyctanthes arbor-tristis, Linn.
Family: Oleaceae
English : The Coral Jasmine Tamil: *Pavalamalli*

A large shrub with rough leaves and sweet-scented flowers, most common in gardens of India. The flowers open towards evening, and fall to the ground on the following morning. The flowers are rich in yellow colouring matter. The colour is extracted by steeping the dye-stuff in boiling water, which is used to colour the silk cloth.

Oldenlandia umbellata, Linn.
Family: Rubiaceae
English: The chay root Tamil: *Imbural*

A small biennial plant, which occurs in sandy soils all over South India. The root bark of this plant gives a beautiful red dye with alum as a mordant. It is much employed for dyeing the kerchief and red colour sarees. Roots of two years growth, are favoured for dyeing. Bark of the root contains the dye substance and alum is employed as mordant.

Oroxylum indicum, Vent.
Family: Bignoniaceae
English: Tamil: *Achi*

A glorious tree, found throughout India, up to altitudes of 3,000'. The bark and fruits are used as mordant in dyeing.

Punica granatum, Linn.
Family: Punicaceae
English: The Pomegranate Tamil: *Maadulai*

It is a small tree, wild in strong ground and cultivated throughout India. The flowers are used in various parts of India to impart a light red colour to cloth. The rind of the fruits gives a greenish yellow colour. The bark is similarly used as dye for leather. The dye ingredients are the fresh flowers and the dried fruit skin.

Rubia cordifolia, Linn.
Family: Rubiaceae
English: The Indian Madder Tamil: *Mangitte*

A herbaceous creeper, found throughout the hilly parts of South India. The plant yield a red dye and the root is much used for doyeing the coarse cloth. The root and the lower twigs are the dye-yielding portions. It is also used in the calico-printing.

Terminalia chebula, Retz.
Family: Combretaceae
English: The Black Myrobalam Tamil: *Kadukkai*

A large deciduous tree abundant in the Northern India from Kuman to Bengal and Southward to the Deccan table-lands. Both the fruit and galls produced from leaves give a permanent yellow colour with alum. This dye is produced in various shades of black in combination with some salt of iron, generally the proto sulphate. The dried rind of the fruit is powdered and steeped in water. The cloth steeped in this infusion acquires a dirty grey colour.

Thespesia populnea, Corr.
Family: Malvaceae
English: The Umbrella tree Tamil: *Poovarasam*

A moderate sized ever-green tree, found in the coastal forest of India; largely cultivated along roadsides. The capsules and the flowers are said to give a yellow dye which is soluble in water, which is used to dye silk and wool.

Toddalia asiatica, Pers.
Family: Rutaceae
English: The Lopez tree (or) Forest -Pepper
Tamil: *Milagaranai*

It is a rambling shrub, found in South India and sub-tropical Himalaya. The root bark is a source of yellow dye-stuff. It yields a colouring matter to water.

Ventilago madraspatana, Gartn.
Family: Rhamnaceae
English: The Buch Thorn Tamil: *Vembadam.*

A large climbing shrub of the drier forests of South India. The root bark contains a valuable dye. It yields a beautiful chocolate colour. The dye is largely used for cotton cloth.

Wrightia tinctoria, Br.
Family: Apocynaceae
English: The Dyer's Oleander. Tamil: *Veppaalai*

A tree common all over South India. The leaves yield a kind of Indigo. the seeds are said to be used as an adjunct to other materials in dyeing.

Carotene

The yellow colouring matter from carrot, the 'carotene', is used for colouring and fortifying butter and cheese.

Lichens

Some species of Ochrolechia gives a red and purple dye, which is used as an acid indicator in the laboratories. The species of 'Roccella montagnei' and 'Lasallia' pustulata, lichen compounds that are responsible for the colours of lecanoric acid erythrin and ecgrophoric acid. Brown dye is obtained from parmelia omphalodes. They are used to dye wool and silk fibres.

Botany section has a few collection of Dye printing blocks which has representation of floral motifs.

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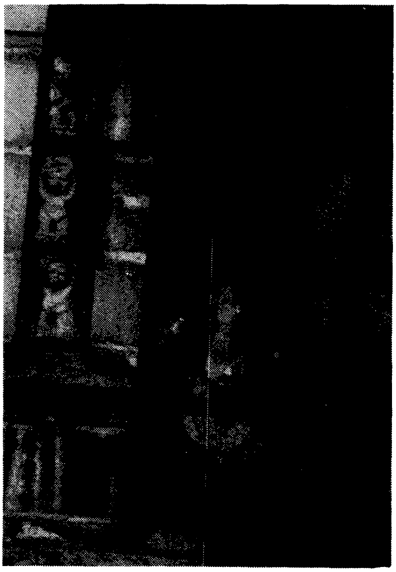
A NOTE ON GANESHA SCULPTURE AT THE BIG TEMPLE, THANJAVUR

In Iconography of the Jain Images in the Districts of Tamilnadu published as a Bulletin of the Government Museum, Chennai (New Series - General Section Vol. XVII, No. 1, 2002), a bronze Ganesha with two *Chamaras* and a very small *Mukkudai* on the *prabha* at the top has been described (Sl. No. 28, Acc. No. 157/ 2002; Kallakurichi, Cuddalore district).

GANESHA (Stone)
Thirukkurugavur



GANESHA (Stone)
Big Temple, Thanjavur

Ganesha sculpture with a single tiered umbrella and *chamaras* has also been described in the above bulletin (Sl. No. 29, Thirukkurugavur Vellidai Easwara temple, about 8 Kms. from Sirkali). Presently, the writer has noticed in the Big Temple, Thanjavur, on the Southern *Devagoshta*, a big sized Ganesha sculpture similar to the Ganesha mentioned in Sl. No. 29. This photo is now published.

- Dr. R. KANNAN